# The Builder.

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## ILLUSTRATIONS.


Monument to Leonardo da Vinci, Milan ..... 1144
The Certosa, near Pavia, Italy ..... 1146
The Hampstead Cemetery.—Mr. Charles Bell, Architect ..... 1147


## CONTENTS.


"Italy, from the Alps to Mount Etna" ..... 1135
Architectural Suggestions at the Social Science Congress ..... 1137
The Society of British Artists ..... 1138
Mr. Deschamp's Gallery ..... 1138
Death of the Painter Diaz ..... 1139
The Influence of Business Requirements upon Street Architecture: Royal Institute of British Architects ..... 1139
The History of Gas-lighting ..... 1141
Stables and Coach-houses in the Old Bailey ..... 1143
A Warning Note from Hackney ..... 1144
New Cemetery at Hampstead ..... 1149
Fall of an Iron and Concrete Floor ..... 1149
Philadelphia Exhibition Awards ..... 1149
Domestic Economy, and a Musical Experiment ..... 1149
Tiling ..... 1150
Health and Sewage of Towns ..... 1150
Has Household Art deteriorated? ..... 1151
Richmond Park and the Public ..... 1152
Sale of the Cathedral Hotel, St. Paul's Churchyard ..... 1152
Conference of Vestries on the Thames Prevention of Floods Bill ..... 1152
The Prevention of Echo ..... 1152
The Needlemakers' Company's Prizes ..... 1153
Liverpool Master Builders' Association ..... 1153
Master Builders and Apprentices ..... 1153
Sewerage Matters ..... 1153
Damp and Ventilation ..... 1153
The Land and Buildings on Epping Forest and the New Scheme ..... 1154
A Lecture Hall for Hackney ..... 1154
Birmingham Builders' Association ..... 1154
Auctioneers' Charges ..... 1154
Dispute as to Marble Polishing: Kelly v. Radejar ..... 1154
Scottish Cathedrals ..... 1154
Chalk ..... 1154
Leeds Municipal Offices Competition ..... 1155
Competitions ..... 1155
Aldgate Extension of the Metropolitan Railway ..... 1155
Royal Exchange Excavations ..... 1155
Masters and Men ..... 1155
Who wants a Church? ..... 1155
The Birmingham Borough Surveyor ..... 1155
Paving Appointments ..... 1155
Sewage Irrigation ..... 1155
Interviewing a "Jerry" Builder, by an Amateur Government Inspector ..... 1156
Books received: Dowson's Tramways (Spon); The Extravagant Expenditure of the London School Board (Wilson); Variorum ..... 1156
Miscellanea ..... 1157

### "Italy, from the Alps to Mount Etna."*

HIS splendid book comes before us with less than the usual amount of introduction. It has no preface. There is nothing on the title-page to indicate the authorship; and although it is mentioned as a translation, it is not said from what language it is translated. It is not, in all probability, until the reader has been perplexed by the marked difference in the style and ability of the latter part of the volume, as compared with the earlier pages, that he discovers, half hidden in the sub-titles of the different sections, that from the Alps to the Arno has been described by Karl Stieler; from the Arno to the Tiber, by Edward Paulus; and from the Tiber to Etna,—we cannot say described, but written about,—by Woldemar Kaden. Again, the engravings all bear German signatures; although, as there are often two or three on the same print, and as no names are attached to the list of illustrations, we are left to conjecture as to who is the draughtsman, the engraver, or perhaps, in some cases, the photographer, of either. We are thus led to the conclusion that we have before us the reproduction of a German work. It is the more to be regretted that some light has not been thrown on these questions by the editor, from the fact that the book, though on the whole one of extraordinary beauty, is of unequal merit. In speaking as highly as we are prepared to do of a charming contribution to drawing-room literature, it is the more necessary to be wary, lest indiscriminate praise should be confuted by the citation of such an engraving as that of "Orlandini's Beer Garden, Florence" (p. 166), or the "Peasants of Seva" (p. 338).

It is only fair, as a set-off against this, to refer to the masterly drawing and great beauty of some of the chief gems of the book. Such are "After the Mass in S. Trinita di Monti, Rome" (p. 276); the "Head of a Peasant of the Campagna" (p. 242); "Stella, a Roman Model" (p. 241); the "Fisherman of Gaeta" (p. 350); "The Entrance to the Blue Grotto at Capri" (p. 428),—which has all the swell of the sea, never resting at that spot, and the very life of the Neapolitan *marinaro*, though the passengers should have been shown as crouching low in the boat, to avoid a blow against the roof of the entrance to that unique piece of fairyland;—the "Neapolitan Fisher Girl" (p. 360); and the "Boy and Girl of the Sabine Hills" (pp. 330, 331). These engravings show the influence of the vigorous style of Kaulbach on German art, and are of a very high order of artistic merit. Again, in the literature of the book there is a gravity of tone, and vividness of narration in the writing of Herr Stieler, and perhaps even more so in that of Herr Paulus, which are worthy of their noble theme.

To do justice to a work on such a subject, and so full of charming illustrations, under the different points of view from which it may be regarded, would far exceed the limits at our command. To our own readers it will probably be most acceptable if we glance at what the volume brings before us of the rich and varied architectural treasures of Italy, remarking that the effect produced by their contemplation on cultivated German scholars is fully as profound, however different in its form of expression, as that experienced by the English traveller, if not by the Italian himself.

The book commences with brief but graphic descriptions of the five chief mountain passes by which the traveller crosses the Alps. The account of the sensations of the passengers on entering the Mont Cenis Tunnel is very true to life. What we may call the Alpine architecture, with its wonderful devil's bridges, and yet more wonderful tunnels, is rather local than national in its character. It is at Trent that the Teutonic element seems first to yield its ground to the Latin taste. The gateway of the Palazzo Sardagna, in Trent, with its chamfered and rusticated doorway, its bold caryatides, or rather Atlantides, supporting the projecting balustraded balcony, and the armorial shield upborne by the carved Amorini, in the place where the pediment is not, is a very characteristic specimen of the sumptuous Domestic architecture in which Italy is so rich. There is a view of the ancient Castle of Trent. "*Il buon consiglio*, said a man who accompanied us unasked, pointing with his hand towards the mighty castle which bears this name; its battlements, which masterfully dominate the city, were glowing in the evening light. High above them the mountains stretched in noble outlines. The castle was built in days when every palace was a fortress, and when power manifested itself defiantly. Here dwelt the Prince Bishop with his chapter; the latter claimed the privilege of having only noble, or the most renowned men of learning, amongst its members. Above the long range of windows rises the battlemented masonry wherein hawks make their nests." With a companion who thus enters Italy, and whose nervous sentences are rendered, by a lady's pen, into such classical English, it is a delight and a privilege to wander. We listen with him to the tales of the ruined glories of the great saloon, of the noble staircases, the majolica, and the frescoes of Giorgione and Giulio Romano. Over the house-tops, close to two slender turrets, rise the severe tower and dome of the cathedral, where lie the bones of the famous martyr Vigilius, who built the first church in Trent, and fell a victim to his disrespect for the worship of Neptune, the patron god of the city, which yet bears the device of the trident. The builder of the Duomo, or cathedral, was one Adamo de Aragno. The blocks of reddish marble have been blackened by time; at a considerable height the wall is broken by airy arcades where pigeons flutter in and out. In the neighbouring church of Santa Maria Maggiore the famous Council of Trent was opened in the year 1545. A fresco painting in the choir commemorates the event, and contains portraits of many of the members, while the Madonna with her infant floats serenely over their heads.

After a charming peep at the Lago di Garda, we come to Verona,—a name famous in English ears as much from the reflected glory of the work of our great national poet as from its own antiquity and beauty. Here, shaded by the lofty, slender campanile, we are shown the street which leads to Juliet's house,—still bearing the sculptured hat, the cognisance of the Capulets,—each building in which is rich with an architectural style of its own. Here, amid the tombs of his family, the Scaligers, is the monument of Can Grande, the mysterious Veltro of Dante. Among the effigies in the neighbouring church of Santa Maria Antica are those of Roland the Paladin, and of Queen Bertha, the mother of Charlemagne. But it is the modern history of Verona that dates from Charles the Great. The ruins of the Amphitheatre are of the time of an earlier empire. Who built this noble edifice is uncertain. According to the measurements of Maffei, the arena is 450 ft. long by 360 ft. wide, with forty-four rows of seats that would accommodate 40,000 spectators. To provide for the safe ingress and egress of such a prodigious crowd, as many as seventy little doorways open on the great wedges of the circular incline.

A characteristic little architectural sketch is that of the courtyard of a house in Verona, where the garden is seen through the low arches of the loggia, and the canopy of the draw-well is veiled with creeping-plants. The bridge of Borghetto, near Valezzio, is a picturesque ruin, which makes a highly imaginative picture. We have a view of Verona from the Giardino Giusti, with lofty campanile towers above a sculptured fountain, girt by an arcade. Then we come to the old castle, which threatens the distant Mantua; the towers of which "rise boldly, with sharply-cut battlements, into the blue sky,—a veritable falcon's eyry." It was built by the Scaligers and the Murazlia, a fortress-wall erected by the same family in the fourteenth century, extends for a distance of 6 kilomètres to Valezzio. It was at Villafranca that the Emperor Francis Joseph met Louis Napoleon on the 11th of July 1859, and that the conditions of an unexpected peace were suddenly concluded.

* "Italy, from the Alps to Mount Etna." Translated by Frances Eleanor Trollope, and edited by Thomas Adolphus Trollope. Illustrated with upwards of 100 full page, and 300 smaller engravings. London: Chapman & Hall.

In passing from Verona to Venice, Herr Stieler takes us over a mountain route, now neglected for the railway, and introduces us to I. Sette Communi, the Seven Communes, ancient German settlements which stand, like outposts of the empire, in Italy. The ancient Porta Rusteri, at Feltre, with its narrow-arched doorway, its quasi Egyptian batteries, its frowning machicolis, and the tower, gardens, and balconies of the tower peeping over the lofty wall, is another charming scene. Still journeying towards the Adriatic we reach Vicenza, the city of Palladio, born there in 1518, and first educated as a sculptor. Three noble Corinthian columns, still *in situ* on their lofty bases, are filled up by windows, balconies, and decorations of Palladian taste. Such is the aspect of the old seminary, Vicenza, one of the most curious compounds of Classic and Mediæval Italy to be found south of the Alps. Vicenza is but a small town, of some 40,000 inhabitants. But the Piazza dei Signori, which was the forum in imperial times, is immense; surrounded by arcaded and columned public buildings, shadowed by a campanile which rises to the height of sixteen times the width of its sides, and adorned by a marble statue of Palladio.

After a glance at Padua, where the Church of St. Anthony, with two lofty octagon towers, crowned, like the great tower, with conical roofs, and rising above a group of five domes, visible at the same time, shelters a never-dying flame that burns before the shrine containing the bones of the saint, we come to Venice. This locality has been so often described that we refer those who, like ourselves, love the guidance of Herr Stieler, to the book itself, for his account of the ocean city. The view in Chioggia, showing the industry of the fishers and peasant women, under the shade of one of their vast ribbed arches, that offer so grateful a shelter from the Italian sun, is the most originally striking of the Venetian illustrations. Then we have a view and description of Trieste, and are told how, since May 16th, 1837, when the first Lloyd's steamer, built in London, sailed from Trieste for Constantinople, the tonnage of the port has increased, so that by the year 1870 the capital of the Austrian Lloyd's Company had been raised to ten times its original amount of 1,500,000 lire; the number of steamers owned by the company was seventy; and in the voyages of a single year, extending over 1,118,000 miles, more than 300,000 passengers, and 6,000,000 cwt. of goods had been conveyed. Here, too, we are shown the tomb of Winkelmann, murdered by his guide in 1768. Not far distant is the Castle of Miramar, represented as a stately building; the house of the Archduke Maximilian before he left Europe, under ill-starred advice, and relying on perfidious support, to wear the blood-stained crown of Mexico, and to expiate, in his own noble person, some of the foul deeds committed by the servants of his ancestors on the race and the subjects of Montezuma.

Passing Mantua, with a view of its quaint drawbridge, we come to Milan, a city which struck Herr Stieler as more cosmopolitan, in fact, more modern, in its aspect than any he had yet approached in Italy. Here stands the fine monument and statue of Leonardo da Vinci, of the design and execution of which we enable our readers to judge for themselves, by reproducing the engraving.* The view of the columns of San Lorenzo,—the pillars of a noble Pagan temple thus baptized,—flanking the line of road, are, however, of imperial antiquity; though a Gothic arch is associated with this façade. The church of Santa Marie della Grazie reminds one of an enormous carved and inlaid box for the preservation of relics and sacred treasures. There is a fine view of the interior of the Duomo, and a distant glimpse, from the busy street now called the Corso Vittorio Emanuele, at the roof of the huge building. The thousands of marble statues surmounting airy pinnacles seem to be the work of enchantment. From among these may be seen in the distance the blue chain of the Alps, with the deep shadowy clefts of its chief passes, and Mont Blanc shining whitely aloft. On a clear day the Duomo at Milan is visible from the Superga near Turin,—a day, that is to say, so exceptional among all the bright Italian days, as only to occur two or three times in the year.

Fifteen miles from Milan is Pavia, a view of the famous Certosa of which city we reproduce, by the kind permission of Messrs. Chapman & Hall. The word "Certosa" denotes a building,—abbey, convent, or church,—belonging to the Cistercian order of Monks; the French *Chartreuses*, and our own Charterhouse establishments. The Certosa of Pavia was built about the same time as the Duomo of Milan. It contains a church, a cloister, and numerous conventual buildings. All are designed in the same style, as parts of one grand whole, and show an artistic unity such as few buildings in Italy, at all approaching them in magnitude, exhibit. From the effective engraving our readers may form a general conception of the design. There are, if we do not mistake, numerous casts and reproductions of many of the more beautiful details to be seen in the South Kensington Museum.

We cannot linger with our guide amid the three lovely lakes, the Lago di Como, the Lago di Lugano, and the Lago Maggiore; and only pause to refer to the combination of architecture and vegetation in the beautiful rotunda of Hercules on Isola Bella, in the second, and perhaps the most exquisite, of these three water stations on "the way to Paradise." A sketch of the castle of Moncalieri, one of the strong cradles of the sturdy race of Savoy, while we can find no fault with its draughtsmanship in matter of accuracy, fails altogether to impress the mind with the sense of vastness, and of stern and hoary antiquity, which the actual aspect of this fortress-palace awakens. The chapter on Turin is all too short. We get no idea of the brilliancy of the little city. The Parisian elegance and regularity of its modern portions; the peculiar veil of false antiquity thrown on so many of its buildings by the decay of the ill-burned bricks of which they are built, and which it has been intended, some time or other, to coat with plaster; the fine fountains; the beautifully clean and arcaded streets, which are swept with a river of some 2 in. or 3 in. deep of clear water when a thunder-storm rushes from the Alps; the magnificence of the mountain views; the noble flood of the Po, which we can understand how Virgil called *Rex fluviorum*; the brilliancy of the Corso; the beauty of the horses; the quaint and incredible ugliness of the dogs; the solemn awe of the black marble crypt in the cathedral; the beauty of the Vaudois Temple; the noble armoury; the stately palaces;—of all these who can speak in six pages, half of which are filled with engravings? There is a good view of the Porta Palatina, which we conclude has been drawn from a photograph, as it gives much of the grey and crumbling effect of which we have spoken. There is a peep,—only a peep,—at the Superga, the most magnificently situated basilica in Italy, perched on a mountain peak, on which stood the Duke of Savoy to reconnoitre the position of the troops of Louis XIV. of France, who were besieging the little capital. The Duke then vowed, in the event of victory, to build a church in honour of the Virgin on the spot where he stood. He conquered, and he kept his word. A beautiful moonlight view of the Monte dei Capucini, to the south-east of the Po, gives little indication how close Turin itself lies to the left bank of the river.

From Florence the reader is taken to Genoa, the illustrations of which are hardly the best which the picturesque *vicoli*, the stirring port, and the lofty palaces of that superb city so abundantly furnish. There is a view of the Salita San Paulo which gives some idea of the mountain environment of a city, the impregnable strength of which has been destroyed by the long range given to the projectiles of modern warfare. An account of the sea-board country, called the Riviera di Ponente, and the Riviera di Levante, or the western and eastern coast, illustrated with very good vignettes of Bordighera, San Remo, Monaco, and Mentone; a glance at the marble quarries of Carrara, at the castled crag of Canossa, at the leaning towers of Bologna, and at the tomb of Theoderic in Ravenna, bring us to the close of the rapid sketch; and we part from Herr Stieler with regret.

Only fifty-five pages have been filled by Herr Paulus with a brief description of Italy from the Arno to the Tiber. Space forbids us to accompany his hasty footsteps even with the same slight degree of detailed attention that we have given to the first portion of the work Florence, Pisa, and Siena are the three cities comprised in this division of the book. A view of Florence, from San Miniato; the Ponte Vecchio, the Piazza della Signoria with the fountain of Neptune, the massive outline of the Palazzo Pitti, the view from the Boboli gardens, the Loggia dei Lanzi, and the Courtyard of the Bargello are the best of the illustrations of Florentine art. The view of the Piazza del Duomo at Pisa, showing the baptistery, the cathedral, and the leaning tower, is taken, we think, from a photograph. The view of the interior of the ruined abbey of San Galgano, near Chiusdino, several miles to the westward of Siena, is a remarkably fine representation of a rarely visited spot. The style is an Early Italian Gothic, closely akin, in its severe grace, to our own Early English. The shadow cast by the southern wall, the six lancet windows, and the vacant frames of the larger and smaller rose-windows above them, appeal powerfully to the imagination. The curious half arch, supporting the external staircase of a house in Viterbo, is the last of the architectural gems contained in this portion of the work.

With Herr Kaden we could not travel, had we space and time for the purpose. If we entered into any detailed account of Italy from the Tiber to the Ionian Sea we should have to describe the scenes illustrated by the engravers from our own recollections, as little or no aid for that purpose is to be derived from the letterpress. Herr Kaden tells us that he is a poet. Certainly his prose is not such as a cultivated English taste can endure, and we hope that we are not likely to witness a change in our national feeling in this respect. Herr Kaden has passed, it would seem, through the great Adriatic cities, rich as they are in sculptured architecture, in which the Saracenic influence blends with the Italian treatment, without entertaining the slightest sense of the charm and the lesson of the buildings. One of the rarest of the architectural gems of the Adriatic sea-board, Bitonto, a little city of nobles, he does not even name. Of Naples, he says, "This people needed but a roof, a shelter for the night, a covering against the rain, and straightway built, with slight care or pains, their unadorned houses, leaving the arrangement of them to chance, and the decoration of them to the sun, the sky, the sea, and above all to the rich vegetation. Who could think of building for eternity in this city, where man cares but for the gifts of to-day?" It is difficult to believe that the writer of this question could ever have visited Naples. Seen it, as an observant and intelligent describer, he certainly has not. His account is not only projected from his own imagination, but, further, reverses the direction of the shadows. Built as it is within the range of the great earthquake-waves that emanate from Basilicata, and subject, moreover, to special local agitation from the subterranean forces of Vesuvius, Naples is a city built with walls unusually massive. We have measured the thickness of those in the old palace of the Spanish viceroys; they are 9 ft. thick. A hundred years is the proper life of a Neapolitan palazzo before substantial repairs are needed. A glimpse is given of domes, towers, spires, and massive buildings. The views of the Porta Capuana, of the triumphal arch of King Alfonso, of the Church of Santa Maria in Portico, are only casual examples of the great architectural wealth of Naples,—hidden, as it often is, in a labyrinth of narrow *vicoli*. Over the gateway of one ancient edifice (if we remember rightly, it is that of the Palace of Justice) stretches a hood wrought in stone, boldly shadowing the gateway, worked with a delicacy that recalls that of a sea-shell, and yet unfractured by centuries of earthquake.

It is to the illustrations that the reader must turn in order to obtain any notion of Southern Italy. The "Fountain in a Roman Courtyard" is a real bit of Roman life; the pose, the dress, and the face of the woman waiting for the filling of her pitcher are those of many a Juno of the Trasteverini. The "Roman Model" (p. 245) walks as no other women walk. The view of the half-buried columns in the Forum of Nerva is taken, we think, from a photograph; but it is an admirable woodcut. We have glimpses of the Coliseum, the Forum, and the Temple of Vespasian; a peep at the Ghetto; a view of the interior of St. Peter's. Further south, the attention will dwell on the fine print of the Temple of Neptune at Pæstum, and the romantic tufa cliffs under and around the quaint little archiepiscopal city of Sorrento, the capital of the very garden of Campania. The full-page illustration, "From a Villa, Castelamare," should be entitled "Castellamare, from a Villa near Posilippo;" the little white dots at the foot of the distant Vesuvius denoting Portici, Torre del Greco, and Castellamare. The two prints, "Dolce far Niente" and the "Grotto of Posilippo," are real bits of Naples. The gas-lamps fixed in the latter, more commendable matter of police than as matter of taste, are instances

* See p. 1144.

of the changes effected by the substitution of the rule of Victor Emanuel for that of Ferdinand II., under whose sway, however, be it remembered, the brigandage that now scourges the Southern part of the Italian Kingdom was almost entirely put down. We think that we have said enough to show how delightful an hour can be spent over the pages of "Italy from the Alps to Mount Etna." Notwithstanding the objections we have been obliged to make, it is a very beautiful book.

## ARCHITECTURAL SUGGESTIONS AT THE SOCIAL SCIENCE CONGRESS.

We offered some comments lately on the suggestions in relation to the furtherance of art in its more ideal forms, which arose out of papers read at Liverpool. We consider that we shall be promoting the practical objects of the Congress in returning to what was said on the same occasion as to architecture and decorative art, and thereby giving further emphasis to whatever suggestions seem worth keeping in mind for more mature consideration.

The papers read by Mr. Stevenson and Mr. W. H. White on the subject of town architecture formed about the most practical portion of the proceedings of the Art Department: it may be admitted, perhaps, that in dealing with a subject so closely connected with the wants of every-day life, the writers started with a decided lead towards the practical side of things. Mr. Stevenson, indeed, took professedly the art side of the subject of street architecture, but showed a practical sense and moderation in his remarks which was commendable. He had the courage (for among a certain set of persons it requires a little courage just now) to decline to regard art as "the be-all and end-all here," looking at it as one side only of the life of the individual or of the nation, which, however, ought to be duly and fully developed; and his moderate and well-weighed language contrasts advantageously with the style of philippic which is so common, and which was not unrepresented at the Liverpool meeting, against "shams" and "abominations"; for calling names and showing things up to ridicule is now too often considered a part of the *rôle* of an apostle of art. Mr. Stevenson seems not to have known, any better than we did, what to make of the ambiguous sentence in the programme, which dictated that street architecture should be considered "especially in reference to public buildings." Discarding the latter as far too large and extensive a subject for a paper, he claimed for the treatment of ordinary street houses an important place among the architectural questions of the day; decorations with gold and mosaics, and such sources of rich effect, could never be general; what to do with the ordinary house and the ordinary street was the question. His predilections for adopting the most plain and unadorned of brick styles (of anything that can be called a style at all) have been made prominent on various occasions recently: the decisive point which he has made in its favour appears to us to be in putting forward the fact (as it certainly is) that the detail both in brick and wood of this Queen Anne and Early Georgian style forms "the vernacular" of the modern bricklayer and joiner, which they work in when left to themselves, and understand the use of, just as the Mediæval mason worked in his vernacular of mouldings and carved foliage. It does not follow, however, that this should always be the vernacular of the modern workman. Mr. Stevenson did not press the point, or override his hobby, as we think he has done on some other occasions, but when he says that in street architecture we must take what we can get, and that we can get something founded on the builder's vernacular more easily than anything else, this is being rather easily contented, and one is tempted to ask why we should be satisfied with so much lower a level in modern street architecture than has been attained in past times, when buildings and streets were erected, for everyday purposes, which the architect is now glad to fill his sketch-book from, if merely for a reminiscence of their pleasing and interesting effect. But he is ready to admit that the particular style in which streets are built is "of little matter" (we would rather say, "of secondary consequence") so long as the building is good in the style it attempts. Mr. White put the same sentiment rather better and more completely in his remark, that what was wanted was not "a style," but *style*. This quality cannot be created all at once, either on the basis of "builder's vernacular," or on any other style or manner, but perhaps a better way of putting the general requirement of our town architecture is in the more limited requisite named by Mr. White, who thought that what we required in the first place was a real and serious determination to have, along with good, solid, and honest building, something like order and harmony in the disposition of town structures; and even the rule of a central authority to control the whims of speculators, and the autocratic doings of railway companies and their engineers. He wished for "a technical tribunal," which should decide whether this or that scheme was, as far as architectural appearance and respect for existing structures were concerned, advisable and to be permitted, or the contrary; such a tribunal, we presume, as might have prevented the erection of Ludgate-hill Bridge, or compelled the substitution of a less hideous design for the present one.

There are two sides, however, to this latter idea. One may be disposed to say that any system which would prevent such disfigurement of cities would be an advantage; but that is a kind of matter in which the lines of operation would need to be very carefully and cautiously defined. A "Committee of Taste" is a kind of institution which has seldom answered any very good purpose, at all events without doing a good deal of positive harm in its endeavour after negative good; and over-legislation is one of the very things from which town architecture is now suffering. Mr. Stevenson recognised this, and repeated almost in our own words the remark made in our previous article as to the effect which Building Acts had produced in rendering illegal most of the variety and play of fancy in building which go to form what we admire in the picturesque effect of many old streets in old towns. We are disposed to concur with him in his preference for liberty in street architecture, even at the risk of some vulgarity, to what he calls "the dull safety of despotism."

The question of regularity or irregularity in the designing of contiguous houses is one rather difficult to come to a decision upon. A good deal may be said on both sides of the question. Viollet-le-Duc has spoken sarcastically of the modern system of building a whole square as one design, though it is composed of many buildings sometimes for various uses, or, if they are all dwellings, at any rate separate buildings practically: a kind of practice which, he says, that a Greek architect would never have thought of. We have always upheld that a row of houses, even if similar in general design, should have distinctiveness of detail: a quality which, as Mr. Stevenson reminds us, is to a certain extent realised in the houses of the Wimpole-street date, in which the doorways are carefully designed, and each has its own character. But this question seems to us to depend very much on the degree of similarity in the uses of the buildings, and the point of view from which they are collectively to be seen. If there is no point of view from which the group can be taken in as a whole,—if the houses composing it can only be inspected separately at close quarters, there seems no excuse for making them all alike, and it is better to seek a variety of the picturesque in each tenement. But if, as in the case of a square or a terrace seen from a little distance in an open park, the whole can be taken in at once as a group, we cannot see the objection to combining a group of dwelling-houses, especially if belonging to the same property (which makes a kind of ground of unity), into an extended design, sufficiently broken up and diversified, but symmetrically arranged in subordination to a general idea. Variety in detail can still be carried out, and there is no doubt that a great appearance of dignity is gained by such a treatment. Absolute uniformity is dull and wearisome in every case, and unsuitable also; and most readers will concur in Mr. Stevenson's criticism on the Grosvenor-place houses, and the waste of material and cost, in proportion to the effect produced, involved in carrying out the same design and the same heavy stone porch to each house. There is no practical difficulty in avoiding this: it is as easy to build a terrace of houses with varied design as with one design, when the drawings are once made; the only difficulty is with owners of land, who sometimes make a stipulation that all the houses on a site shall conform in design. This, however, is probably stipulated under a real idea that they are thereby keeping up the respectability of the property, and making the site more attractive to the best class of tenants: if they find that the development of taste alters this condition of things, and that the best class of tenants begin to prefer houses with a distinct character to those which can merely be distinguished by their number in the row, the ground-landlords will soon be converted to the same view. The question between artificial regularity and the reverse becomes more difficult when we come to consider the laying out of towns. As every one knows, nearly all new streets in our towns are laid out as straight as an arrow (where circumstances permit), and at precise right angles to the streets or squares formed in connexion with them. Mr. Stevenson says, truly enough, that this formality has done more than anything else to rob modern towns of the picturesque, and that nothing would do more to improve street architecture than aiming at a little irregularity of line in the setting out of streets. He quotes several instances of the good effect of a winding or curved line in foreign towns; he might have added one nearer home, which has been poetically immortalised in the line,—

"The stream-like windings of that glorious street;" *

but he adds the conviction that, from the surveyor's point of view, such things appear merely silly, and he is not sure that two doctors might not be found who would consider it as evidence of insanity for an architect deliberately to plan a street so. The question of distance, of the shortest route, we may observe, does not practically affect the case much. A street may be turned very considerably, to the eye, from its normal direction, without materially interfering with its definition as the shortest distance between two points. A more serious consideration is the interference with the regularity of building sites, and the consequent impossibility of arranging and planning the houses without leaving awkward and useless angles, or having ill-shaped rooms. This certainly is a drawback to the idea of what may be called studied irregularity; but that sort of irregularity which is half regular, depending upon the introduction of regular curves, semicircles, &c., may be carried out without any inconvenience to property. What may be done in the way of effect in this way, even with bad architecture, is shown in such an instance as Regent's-quadrant. It is certainly desirable that some check should be put on the tendency to arrange new suburban sites in square and oblong patterns, with roads crossing like the bars of a gridiron, and the forbidding monotony of interminable streets, along which the eye looks without break or relief of any kind, while the thought of walking to the end seems to tire one beforehand. Formerly any natural turns in the boundaries of property through which a line of street passed were naturally followed; now, the object is to run straight through them all. Contrast the road out of London by Notting-hill and Shepherd's-bush with that by the interminable straight line of the Edgware-road, and the difference in effect needs no comment; yet the windings in the former route are very slight, not such as to lengthen the distance in any appreciable degree. We must, however, demur to Mr. Stevenson's illustration of the superiority in artistic effect of curved lines over straight, by the example of the Greeks, as shown in the curves of the Parthenon lines. These, except the swell of the columns, were curves inappreciable except by measurement, and intended, in fact, to intensify the effect of squareness; the illustration is, therefore, inapplicable. We cannot accept, either, his depreciation of the value of wide streets. Circulation of air may, as he says, go on as well in narrow streets, provided they interpose no bar to a continuous passage of air; but what about light and the conveniences of traffic, and the important advantage of a cheerful open uncrowded aspect? We can scarcely be brought to think that these are secondary considerations. Upon the desirability in modern towns of extending dwellings upwards so as to get more accommodation on a given base, both Mr. Stevenson and Mr. White were agreed; the former touching upon it, the latter devoting a considerable portion of his remarks to the point. The advantages and possibility of the farther development of this principle of building have recently been fully urged in our columns, and all we can now do is to wait and see whether any enterprising persons will do anything towards realising a system which we believe to be now called for.

The subject of the general artistic aspect of towns, though not purely in relation to

* Wordsworth's "Sonnet on revisiting Oxford."

street architecture in the strict sense of the term, occupied a large proportion of Mr. Poynter's address, and it is interesting to notice what defects in modern towns seem specially to strike the eye of a painter. Mr. Poynter referred at some length, and in a very hostile spirit, to the disfigurement of often the most picturesque or architecturally effective portions of a town by the sudden introduction of some hideous railway bridge; an intrusion which seemed to cause the majority of persons little or no concern, save in very exceptional cases. What had been given by the engineer with one hand, in the great work of the Thames Embankment, had been taken away with the other hand, by defacing the river side with monstrous and hideous railway sheds. His contention was that there was no need for these structures to be so ugly and ungraceful, but that nothing was to be gained by covering them over with applied ornament, utterly unsuitable, and drawn from past ages and a different order of things. If the results of engineering were ever to be less objectionable than now, it must be by seeking for such results within the necessary conditions of its existence. "In short, the exercise of ingenuity in works of pure utility may be made to occupy the place filled by decoration in ornamental art." We have so continually and so recently urged this view of the æsthetic side of engineering work, that we merely quote the above remark as another piece of good evidence in favour of our own view.

The third division, as we may count it, of the art department subjects of the Congress, the influence on society of decorative art and artworkmanship in household details, is one upon which it is possible to say a good deal which is more high-sounding than practical. The influence on society of well-designed furniture and of decorative art generally can only be very vague and partial, and is scarcely susceptible of definition. When people begin to talk, as they often do, about the influence of good and artistic workmanship in such articles, in promoting Truth and Goodness (with capital letters), one is perversely reminded that a great deal of the very best and most truly artistic ornament has been the production of semi-savage peoples, and that periods marked by the greatest refinements of decorative art have at the same time exhibited the phenomenon of a society in which vice, cruelty, and deceit were the everyday rule of life. Mr. Eastlake steered clear of any exaggeration in his paper, which was throughout moderately expressed, and a good part of which went to re-affirm the principles he has before recommended in his work on Household Taste, which has become deservedly popular, and is a kind of text-book with a considerable proportion of those who pay any heed to the subject. His paper, indeed, like Mr. Poynter's address, deals in some degree with the influence of society upon art, rather than the reverse. He made a good point, however, in suggesting that expenditure lavished on gastronomic luxury might be better laid out, and with a return better worth having, on the superior workmanship and thought required to produce good and artistic furnishing to our rooms. Our impression, however, is that at present the two things, with the wealthier class, go together a good deal, and that those who are particular about the taste and style of their furniture are exceedingly careful of their own comforts in other respects; in short, we see little evidence that there either is or has been any very close or necessary connexion between high art in furniture and a high tone in life. We fear the balance of facts is on the other side. The connexion may be traced so far as this, that a very artificial and luxurious age, in past times at all events, has often shown a predilection for very ostentatious, showy, and rather gew-gew decoration. Take the Louis Quatorze style as an example. It is, perhaps, equally true that a simple and unaffected standard of social life will be and has been accompanied by a preference for simplicity and unpretentiousness of style in regard to its surroundings; but it serves no purpose to push this kind of parallel too far. Most common-sense people, if anxious about the formation of a child's character, would much sooner inquire what books and pictures he had been accustomed to see, than what sort of carpets and chairs he had been brought up amongst; and at present many of the most high-minded characters are, we are inclined to think, found among those who would not trouble themselves very seriously about matters of household taste. One reason of this, however, is that a good deal of modern household taste is, like architecture, only a revival, and therefore only partially real; and what is called "dilettantism" has little genuine connexion with character. What we want is not the taste for any particular style of furnishing and decoration (and that is all that a great deal of the present movement amounts to), but a general feeling of the superior value and refinement of good and durable work, executed in a manner suitable to the material and to practical utility; and the tone of mind which leads to this kind of predilection is, certainly, in a less degree, the same which would lead to a desire for a general truthfulness of life. But even in this modified way of putting it, the influence is from the personal character to the decoration, not the reverse way. With Mr. Eastlake's remark as to the beneficial effect upon the artisan of being employed to produce work which "the classes above him" (a phrase we do not quite like) not only require but *enjoy*, we are quite in sympathy; that again, tends in the direction of Mill's definition of art, "the endeavour after the perfection of execution"; something to be enjoyed, beyond the mere utility of the object made. We should have been glad to have heard something of the remarks of Miss Rhoda Garrett, who read a paper (when we happened not to be present) that was not furnished to us, and which not a single journal seems to have cared to report, though its author has a double claim to notice, not only as a persevering student of decoration, but as a pioneer in the new movement for giving to women a place and occupation in this "gentle craft" of decorative design,—as suitable an employment for feminine taste and habits as anything which has been suggested by way of extending the sphere of woman's work.

In conclusion, we are glad to think that the new department of the Social Science Congress seems likely to be further developed, and to be productive of practical good, as it already has had its advantages in the opportunity afforded for interchange of ideas on art in its relations to society. We would suggest on future occasions a little study, on the part of writers of papers, of that quality which has been said to be "the soul of wit." Some of the communications were quite over-long, even with many omissions in reading, for such an occasion. Art is a fertile and fascinating subject to talk about, no doubt, but zeal should be tempered by the consideration that the objects of the Social Science Congress are practical rather than literary.

## THE SOCIETY OF BRITISH ARTISTS.

THE Winter Exhibition of this society is now open; its special title as an "Exhibition of Sketches and Studies" has been dropped, and it is merely a double of the Summer Exhibition,—that is, a collection of mostly common-place pictures with ambitious subjects. It is a great pity that this and other exhibition societies have not kept to the idea with which these Winter Exhibitions were first started,—of making collections of studies, in which the value consisted in the idea rather than in the finish. That element was exactly what we wanted more of in our exhibitions. But then Smith and Jones, who are beginners, think that, in an exhibition where the great Robinson, who is an R.A., sends only a rough sketch, they will have a chance of standing out prominently if they send a finished painting, and so the Winter Exhibitions are flooded with second-rate pictures instead of (what are often among the most interesting and valuable productions of art) the sketches and first thoughts of first-rate men. This is a real mischief. We want more of idea and thought, less of mere brush-craft, in our exhibitions, and the Winter Exhibitions at first seemed likely to supply this in some cases, as they were professedly instituted with that object; but this result was only attained in the first two years or so. Now we know that when we go into a winter exhibition, we shall see just the same things as usual, painted in the same manner, or mannerism.

The present collection in Suffolk-place is, perhaps, rather above than below the usual mark there; the President of the Royal Academy sends two works, on which we cannot, however, comment with any pleasure, considering them in reference to the position and repute of their author. Among the few figure-subjects we may notice two pictures by Mr. Haynes King, "Tired" and "Scribbling" (57, 73), companion works; "Parted," by Mr. Dattermole (85), and one or two smaller works by the same hand; "My Little Model,"—a child in white frock and blue sash (142), by Mr. Gaunt; "A Musical Rest" (215), by Mr. E. Deanes; "With the Past,"—a head showing some feeling, by Miss Tovey (194); and "Blanche" (177),—a clever head by Mr. Grossmith. The exhibition is much stronger in landscape than in figures, and there are some good things, large and small, among them. Those of Mr. Wyllie (212, 225) sustain his reputation as one of the best contributors; Miss Hilda Montalba has two works, "Landscape, Naas," and "Winter" (89, 156),—the latter a very clever sketch of a snow scene; "Dungeonwood, Todmorden," by Mr. Bayes (76) is good; so is Mr. Ellis's "Bramber, Sussex" (114), though a little in the regulation "fine landscape" style; "The Return from Market" (337), by J. W. B. Knight, should be noticed; "Evening," by Mr. C. A. Calthrop (399) is a very powerful sketch (the class of work we alluded to as desirable in these winter exhibitions); so is, on a larger scale, "Near Beddgelert" (378), by Mr. (?) F. W. Meyer; and Mr. Ellis's "Sussex Farmstead" and Mr. Peel's "Near the Suffolk Coast" (372, 380). Among the figure-subjects we should have mentioned one by Mr. Wallis, "Arranging for the Marriage" (191), and Miss Beale's "Paris Sweepers" (257),—an unusual and very clever thing: a troop of old women going through the blank street lined with posters about a "*bal masqué*," &c., in the first chill of a winter morning, to sweep away the snow. Mr. Marks sends another sketch of a young lady with her back to the spectator, under the title of "The Maid and the Magpie" (240); and Mr. Semper's "Young Jessica,"—a girl reclining on a sofa (284)—is a good sketch.

## MR. DESCHAMP'S GALLERY.

THE collection of works by English artists at this gallery might claim a long article from us as far as artistic excellence goes; but it is not our practice to notice in detail what may be called dealers' exhibitions, where the works are not specially painted and sent for exhibition by the artist. In the interests, however, of those of our readers who like to find themselves in a room full of original and high-class paintings, we mention the collection as one that will well repay a visit, even for those to whom the principal works are not new. It illustrates certain qualities of thought and style which are out of the usual run of English art.

## DEATH OF THE PAINTER, DIAZ.

ON Saturday last, November 18th, Diaz, the French painter, died at Mentone, at the age of sixty-seven.

Diaz's landscapes may be compared with Linnell's, possessing in a high degree a romantic idealism and liveliness of invention easy but dangerous to imitate.

Unlike the greater landscape-painters, Rousseau, Corot, or Millet of the past, or the living Dupré and Daubigny, all of whom have looked at Nature, and represented her as our own Constable represented Nature, with sober, truthful, cool colours, Diaz delighted in bright exceptional contrasts of effect, and in details and accessories not always, perhaps rarely, satisfactory to the critic, and hence he had detractors that, during his lifetime, denied to Diaz the right to the highest honours of his profession; with time, his admirers will be less violent and his detractors more lenient.

Diaz belonged to that group of artists who, like Delacroix, Rousseau, Troyon, Corot, and Fromentin, inaugurated a Renaissance in landscape-painting, and acknowledged as their master our own great Constable; nor do we wonder at their admiration,—rare with Frenchmen for English painters,—when we remember the extraordinarily beautiful specimen of Constable's work that they possess at the Louvre to guide them, and which seems to combine the subtle charms of atmospheric effect and truth of local colour that French landscape-painters of the present day so eminently succeed in reproducing. Diaz was buried on Thursday, the 23rd inst., at the cemetery of Montmartre.

**Esclusham Church Competition.**—A competitor wishes us to request the gentlemen who competed in May last for a proposed church at Esclusham, near Wrexham, to communicate with him in order to take steps against the committee. We know nothing of the matter and cannot take part.

## THE INFLUENCE OF BUSINESS REQUIREMENTS UPON STREET ARCHITECTURE.*

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

To speak of the influence of business, at the present day, and in this great city, is to speak of one of the most powerful agencies. With that immense majority of the people who have in some way or other to earn a livelihood, it is an axiom of daily life — "business first." Whatever else a man may neglect, to neglect his business is the one cardinal offence for which society will not pardon him; indeed, inattention to business interests will bring upon him certain loss and possible ruin. As a consequence we find that obstacles and difficulties, otherwise insurmountable, are most certain to be subjected if business requires. Science, in its varied and magnificent discoveries and inventions, has been the handmaid of man's business far more than of his pleasures. It is therefore but natural to expect that business requirements have exercised a strongly-marked influence upon our street architecture.

It is not my intention to enter into any archæological researches as to the street architecture of Mediæval times; my desire in this paper is to be practical rather than historical; and though it may be desirable in reviewing the work of the present to compare it with that of the past, that past for my purposes may be limited to the present century—a period co-extensive with the memory of that well-worn individual, the "oldest inhabitant." Seventy years ago, however, it may be doubted if the aspect of London streets, so far as the houses and shops were concerned, had much changed from their condition for the previous seventy years. From the reign of Queen Anne, the earlier monarchs of the house of Brunswick did not preside over a high order of constructive art; and, from what we may judge by contemporary works left to us at the present day, builders, for at least a century, were content to run in the established grooves of their matter-of-fact predecessors.

I have been able to collect for exhibition some reprints of old engravings, representing well-known London thoroughfares and centres of business as they stood about 120 years ago. Despite some evident and pardonable exaggeration in the widths of some of the streets, notably Cornhill and Cheapside, these views are particularly interesting from the minuteness, almost comparable with photographic detail, with which the houses and shops are distinguished in the several prints. The varying heights of the windows, their architraves and entablatures, the curious signs swinging above the doors, the incidents about the streets, all contribute to impress upon us the reality and correctness of the picture. Some of these old shops remain in bye city streets and out-of-the-way alleys, which have hitherto escaped improvement. Within the last few years I saw removed one very characteristic shop-front, with its small heavily-barred panes, delicately moulded pilasters, fascia, and dentilled cornice, from a house in Paternoster-row, which had been, I think, tenanted for about 100 years by Dollonds, the famed optical-instrument makers. And in fixing for the support of the superstructure a wrought-iron girder in the interests of another tenant, who believed in plate-glass, we had special cause to be thankful for the tough oaken framework of the superincumbent floors.

At this point it may be opportune to notice some modern revivals in our business architecture of the style of good Queen Anne. By the kind courtesy of their authors, I have been enabled to place upon your walls very many drawings of buildings lately erected; and prominent amongst them, if not in scale of illustration certainly in picturesque effect, are some which arrest the eye and seem to challenge criticism. New Zealand-chambers, with its quaint gables and latticed oriels, takes us back to an earlier and lovelier type of English architecture than the fashion named after that prim little Queen who has come more boldly to the front in the opened area west of St. Paul's. But the building in Leadenhall-street, and the artistic shop-front designed by the same accomplished architect for No. 395, Oxford-street, are alike remarkable for the adoption of small squares of glass in somewhat heavy framework.

It is certain that the window sashes of a hundred years ago were limited in the size of their panes by the manufactured tables of crown glass; and the picturesqueness of the small squares was the fitting outcome of necessity. With our improved manufacture of glass in plates of any reasonable size, it may be a safe prediction that these examples will not be largely followed as a precedent by business people. Individual tastes will, however, exercise considerable influence, and we may pay willing homage to the fearless and vigorous treatment of an artistic conception. There are positions, nevertheless, in which glass in small squares is most suitable, from their liability to breakage and economy in repair. I refer especially to warehouses used for storage rather than for display, of which some good examples may be found among the designs lent for my illustration. For similar reasons the windows favoured in the buildings of the London School Board may be considered fit and appropriate.

Having taken a rapid glance at the business streets of London in the last century, the practical objects of my paper will be best promoted, perhaps, by bridging a considerable interval down to some twenty-five or thirty years ago. Such a date is the more convenient as representing probably the experience comprised in the professional life of the greater number of the senior members of this Institute. It marks, moreover, a period when by the reconstruction and improvement of certain business thoroughfares an opportunity and impetus were alike given to the erection of special business structures.

At that date Regent-street and the City thoroughfares leading to new London Bridge were about the latest streets of any consequence which had been formed for business purposes; and the first-named thoroughfare retains its celebrity for shops of a high-class trade. Oxford-street (its western portion), Holborn, the Strand, Ludgate-hill, Cheapside, and some other busy streets, were similarly noted; and here and there along their course individual business premises of considerable pretensions had been built; but the streets first-named had been the latest extensive additions to London street architecture. The competition between tradesmen in the display of their wares, and the advantages afforded by plate-glass for this object, was working a rapid transformation at this time in the ground stories of the houses, and producing a result confessedly unsatisfactory to our art. The great business requirement of our shop-keeper being a large unobstructed surface of plate-glass, the builder was called in (most frequently without the architect) to put in, in common parlance, a "new front." All the visible intermediate piers and supports of the ground story were swept away with the old chequered sashes; a huge bress-summer was fixed upon the weakest apparent pilasters at the extreme flanks of the elevation, and any necessary intermediate supports given by iron columns or the like, were most carefully hidden by neutralising colours; and, as the large plates of glass were taken as nearly to the pavement level as absolute safety would permit, the architectural result was to show a superstructure, sometimes massive in composition (in the Regent-street of to-day may be seen a heavy Greek peristyle), carried upon a basement of plate-glass! It was vain for critics to deplore, business interests were paramount to all æsthetics, save those comprehended in an enticing display of shop goods!

The curved colonnade of the Quadrant will be remembered as an architectural feature of considerable beauty; and though it had its merits of usefulness also as a sheltered promenade in sunny or stormy weather, it was cleared away, I believe, mainly for the reason that it interfered with business display. Bearing in mind, however, the thriving trades carried on under similar conditions in parts of Paris, as the Palais Royal and Rue de Rivoli, it may be this clearance of the Quadrant colonnade was a mistake.

About this time the fortunate purging of some of the worst human dens in St. Giles's was the means of forming New Oxford-street, by which direct communication was made between the City and the West End by way of Holborn. Here an opportunity was afforded of building to business requirements. The row of shops known as the Oxford-arcade on the north side of the new thoroughfare may be cited as a notable improvement; advantage seems to have been taken to erect a well-lighted ground and mezzanine story, with some regard to architectural effect. Further eastward the bold site forming the angle of Hart-street with the new thoroughfare, was secured by those enterprising and ubiquitous traders, Messrs. Moses & Son; and the structure there erected, despite many defects of treatment, was really a distinct advance in business architecture, and not without results upon the future. Eastward still towards Holborn some picturesque effects of sky-line are produced by some Elizabethan gables, in which regard has been shown to the value of window light; but the incongruity of shop-fronts as sub-structures in so purely a domestic style has an unsatisfactory result.

In the City a clearance was made of some old streets and buildings, south-eastward of St. Paul's Churchyard, and the construction of Cannon-street as a new broad thoroughfare uniting St. Paul's with London Bridge, and intersecting a number of lesser streets and lanes between Cheapside and the Thames, afforded another and valuable opportunity for improving our street architecture. In time the new thoroughfare was steadily flanked by rows of stately warehouses, most excellently planned, and for strength of construction few of them are to be surpassed, if equalled, by any recent erections.

It is to be noted, however, that though at this time such warehouses were entirely devoted to business purposes, and few (if any) persons dwelt in them, yet the fenestration, as a rule, follows domestic precedent, and sufficient regard does not appear to have been paid to the requirements or capabilities for light. This particular defect may probably be traced to a natural disinclination on the part of their architects, and especially in an Italian façade, to set aside those principles of design which have been impressed upon us by early studies of Vitruvius, Chambers, and the best writers and examplars of our profession. The proportion of heights to breadths, of voids to solids, had become canons of architecture, and to transgress them beyond certain well-ascertained limits did not seem possible to any such expediency as a trade requirement.

Far be it from me to say one word in deprecation of those rules of design to which I have made reference. I hold an opinion that the study of Classic art in its highest development,—architecture,—has an influence in educating the eye to a correct appreciation of form and proportion, corresponding in some degree to the influence of classic literature upon the mind; and I share with not a few of my professional friends and seniors in a regret that its study has become so neglected by a section of the rising generation of architects. Further, I think I may be safe in hazarding an opinion that some of our most distinguished Gothic architects would willingly acknowledge the beneficial training of their earlier experience from the study of Classic art. Still, it should be said that the best and truest architecture of all times has been developed in adapting the best available materials, by the most efficient means, to the required purpose. This proposition granted, necessity, which knows no law, can evolve from the vast storehouse of our art a fitting structure for every occasion.

The construction of the Holborn Viaduct, with the large disturbance of surrounding property, resulting in the formation of many new and important thoroughfares, brings us to a point of departure from which might be traced some of the most striking developments of street architecture. Holborn-circus, Farringdon-street, Saint Andrew-street, Charterhouse-street, Ludgate-circus, the flank approaches to Blackfriars Bridge and the Embankment, and lastly, the long sweeping curves of Queen Victoria-street towards the very heart of the City, and opening to view upon its route not a few old churches and buildings of more than passing interest,—all these have given golden opportunities to test the resources of our art; and I venture to submit that there is evidence in the business structures of the past ten or fifteen years that architecture can keep pace with the utmost requirements of the public without sacrificing the governing principles of proportion and beauty.

In referring to the drawings placed in illustration of my subject, it is due to their authors to state that none of them have been specially prepared for the purpose of this meeting, nor have they been grouped with particular regard to their degree of merit or importance; although some of them may have been exhibited elsewhere, I shall, I hope, be excused for bringing them together for this purpose. The series is far from exhaustive, yet it may be considered sufficient for the object, and I desire here to thank my friends for their important contributions to the interest of my paper. In all these recent designs, one especial characteristic may be

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* By Mr. Samuel Knight, Associate. Read at the ordinary general meeting of the Institute, held on Monday, November 20th, Mr. Charles Barry, president, in the chair.

traced,—abundance of light. It is the chief business requirement after space and strength have been secured. As a rule our clients in consultation upon the design of new business premises, are often dubious as to the arrangement of their plan, more or less indifferent as to style, and will leave such matters with confidence to our judgment; but they will insist most strongly upon an abundant light; and overset our most cherished elevation if it seems to limit unduly the number or size of the windows.

This fundamental requirement has had immence influence upon modern design and choice of style. As rectangular openings admit the largest amount of light, and arched openings, especially when pointed or semicircular, limit it, it is not surprising to find that square-headed windows play a very leading part in modern fenestration, and, by consequence, the horizontal features of Classic design form the basis of by far the larger portion of our new street façades. Apart from the superior lighting power of a square-headed window, the greater facilities afforded for such fittings as blinds and shutters give it a practical advantage over an arched form. Architects of Gothic proclivities have not been slow to recognise this comparative defect in their favourite style, and have met it (somewhat successfully, it must be granted) by forming a solid tympanum or spandrel in their Pointed arches, finishing the window-light square at the springing. Though ancient precedents are not wanting for this treatment of a Pointed arch, I confess to an impression that when applied to window arches in storied structures, the result is not entirely satisfactory, mainly, perhaps, for the reason that it involves a compromise of the construction. The level of window-heads finishing close to the ceiling, the section of the upper floor framing crosses the arched portions instead of resting upon them, as consistent design would require.

It might be convenient here to refer to the varied causes which have otherwise affected design in street architecture. Recent legislative enactments have not had as much visible influence upon architecture as the removal of certain vexatious restrictions. The window duty has been removed within my own recollection. A veritable tax upon light, limiting the size of windows, and treating all above a certain small number as a luxury to be enjoyed only by the extravagant classes, could not fail to have an unhappy influence upon the architecture of that day. About the old West-end streets, and especially at corner houses, may be still seen whole tiers of blank windows; and it was common to see their panels painted in imitation of sashes and frames, blinds and tassels included, with a pre-Raffaellite fidelity enough to deceive the very tax-gatherer. The duty upon bricks, limiting their size and shape to a given square mould, and, by consequence, preventing the manufacture of moulded or ornamental varieties, also contributed to the dull "hole-in-the-wall" character of former buildings. With little or no extra cost, but with a greater choice of materials, we are now able to give character and enrichment to our buildings, which could formerly only be obtained by the employment of masonry or questionable stucco. The extended application of iron as a constructive material plays a very prominent part in the modern development of street architecture. With girders of inconsiderable section to span large voids, and stanchions or columns doing the duty of more massive brick piers, very enlarged areas of light and space are obtainable, and there are examples of very admirable buildings displaying these features of construction. From the liability of wide stone lintels to fracture, rolled iron joists of small section are now not unfrequently used for that purpose; and with this advantage, that they enable the window lights to be safely carried very near to the ceiling. This construction, by forming a lateral tie between piers, is an element of strength in the building. In plain warehouses it also contributes to economy in cost. Instances, however, are not wanting in which the architectural effect of iron construction is injured by injudicious treatment in completion. Attempts to conceal the iron stanchion by a weak ashlar pilaster of stone, frequently having a base and capital of still weaklier design, have a disastrous effect upon the composition. And painting such iron supports in stone-colour instead of some pigment representing the metal, often contributes to a loss of proper vigour of design. It should be noted, however, that this latter defect frequently occurs from the employment of a working painter after the architect has resigned his charge. That honesty is the best policy is, however, a truism as applicable to art perhaps, as to morals, for structures fail or succeed in satisfying in large proportion to their consistency of treatment.

It cannot fail also to be observed that the best of constructive materials have of late years come into more general use. Twenty or thirty years ago, stucco for surface and ornament was still largely used, and in the more important business premises of that time to which I have made reference, not excepting many City warehouses, stucco and cement play a considerable part. Now, its use is exceedingly rare. Bath stone and the softer oolites have also had their day, and may be truly described in their decadence as a London material. Portland stone has, however, resumed the pre-eminence given to it by Wren's sagacity, and here and there we find the splendid quarries of Yorkshire and the north contributing to the strength and beauty of street architecture.

It may be guaranteed that Macaulay's New Zealander will find among the ruins of London City an abundance of well-preserved details with which to encumber the vaults of his museum in the far Pacific.

Bricks, of whatever variety, are usually of the very best, and not ashamed to show their faces. Since the fortunate decline of speculative building, place and other inferior bricks have become a comparative drug in the market. Glass, not only for shops, but for all front windows, is now usually of the best plate, and (Queen Anne notwithstanding) in squares of otherwise royal dimensions. Apart from its strength, and the value of free unrestricted light to the interior, it can scarcely be disputed that plate glass improves the exterior of buildings to an extent far exceeding its commensurate cost. Coiling shutters of wood or iron are of universal adoption; their facility in use and economy in space will repay their extra cost from a business view, whilst the substitution of their broad unbroken lines when closed for the worn panelling of the old wooden shutter contributes not a little in breadth of effect to the new buildings.

The entire devotion of premises to business purposes has had another improving effect by the omission of the small private side-door: this may seem at first an insignificant matter, but those of us who have had to provide for the feature in our designs may not be unthankful that it is no more. In the City, where the upper floors are often sublet as offices, the portals from streets in modern buildings are treated with becoming dignity, and some very excellent frontispieces will be familiar to you. The formation of bulk-heads below ground-story windows to give increased light to the basement, has long been a familiar expedient. The extension of the principle to upper stories is, however, of recent origin, and, by the increased light thrown into the interior, likely to be largely adopted, especially in narrow and otherwise darkened thoroughfares. This application is, moreover, peculiarly adapted to ware-rooms for display of goods, as the bulkhead on each floor forms a convenient counter running beneath the windows. The effect of this construction on a large scale may be observed in Messrs. Waterlow's new factory in Finsbury. It cannot at present be said that this treatment has an improving effect upon the elevation; nevertheless there should be no real difficulty in treating it architecturally, and it seems to suggest an emphasis of vertical lines, rather than horizontal, in the composition.

The increasing widths of streets should be noticed, and the salutary effect upon architecture. Light and air are more freely admitted, and the buildings stand at a greater advantage from the improved stand-point of the passer-by. The mistake of crowning the sky-line with enormous overshadowing cornices—some projecting as much as 4 ft. or 5 ft.—has been corrected. The practice (compulsory in most cases) of canting or rounding off the plan in all structures standing at the angle of two streets, has had business advantages, and influence upon design, and should be remembered.

We are familiar with the additional light and prospect provided by a bay window; and it is pleasing to see this advantageous plan restored here and there in the form of shallow oriels above the ground story. New Zealand-chambers has been before noticed; Messrs. Collinson & Lock's gable-crowned elevation in St. Bride-street exhibits a good example; and amongst others some new frontages in Holborn exhibit their designer's appreciation of the principle. Now and then it might involve a slight sacrifice of ground-floor space, but when the upper stories are valuable such value might be often increased by such oriels.

Suggestions have been made at times to utilise the vast acreage of London roofs, as terraced flats, or conservatories for plants and flowers: one or two attempts have been made, by Mr. Lascelles in Finsbury, amongst others, to launch this idea. Upon the walls is a drawing of Messrs. Barr & Sugden's new premises in Covent-garden, erected two or three years since. With an extraordinary view of the possibilities of future London, the agents of the noble duke, who is lessor of the property, required that the buildings, with a frontage of about 36 ft. only, should be so planned as to admit of ready conversion into two dwellings! This explanation is necessary in apology for the design, which is only noteworthy for the large conservatory constructed upon the roof for the business requirements of our clients. It is planned in three separate houses of varying temperature, and is a compound structure of walls, wood and iron. The design will be recognised as a simple adaptation of the familiar Paxtonian semicircular roof. It was erected as an experiment; and though it has, I believe, answered to some extent the trade requirement, it may be feared the London atmosphere is too poisonous to the growth of flowers to expect such costly structures to be extensively erected as pleasure-houses.

Whilst noticing roofs, it should be remarked that the importance of ancient lights to buildings, and the care requisite to be exercised by architects of adjacent structures to prevent injury to them, has occasional influence upon the construction and roofing of topmost stories. The familiar construction of a mansard roof is frequently adopted with success to avoid undue interference with neighbouring lights, and the litigation and heavy compensation often ensuing thereupon. This construction may be, and is, often adopted for less urgent motives, and in tall storied structures it forms a very picturesque sky-line, especially when broken by really well-designed dormers; too often, it is to be feared, the zinc-worker is left to his own fanciful devices, and some vulgar incongruities result. The new block of buildings forming the south-eastern end of Holborn-viaduct may be favourably distinguished among other things for its handsome and characteristic roof.

A few words upon a consideration particularly affecting internal plan. The enormous value of land in business thoroughfares, and the proportionately high rentals obtained for the buildings, has led to a system for calculating that rental, whether for a whole building or a single floor, in close ratio to its superficial area. The result is, that sometimes in the desire to enclose the utmost space, sufficient regard is not paid to the reservation of a proper amount of open area for light and air to the inner portions of the building. In storage warehouses this defect will not be manifest; but in the case of premises divided into chambers and offices, and a large part of them necessarily lighted otherwise than from the street, serious mistakes are sometimes made. It is not unusual to see the entire ground-area enclosed and covered, and the rear portions of the upper five (or more) stories lighted inefficiently from *shafts* rather than areas carried up from the first-floor.

I should say that some otherwise valuable sets of offices have been damaged from this cause, the more from the circumstance that the lower rooms, for which the highest rents should be obtained, are the dingiest and worst ventilated. It would be well perhaps in the public interest if the Building Act was more stringent in this matter.

From the same anxiety to enclose every foot of space, the most acute or oddly-shaped corners are sometimes preserved in important rooms throughout the several stories. To make every apartment perfectly rectangular, upon the irregular sites common to the crowded city is not possible, nor always perhaps desirable; yet it is not sufficiently noted that odd or acute angles in rooms are but rarely of real value,—more frequently they are a positive nuisance from the difficulty in furnishing or utilising them. Such excrescences of space may often with economy and advantage be added to the external area.

There is another business influence continually at work, affecting in an important degree our street architecture, namely, the gradual, yet rapid conversion of rows of private houses into shops, and in what may be called the inner suburban districts this transformation is daily going on. It usually takes the form of building a one-story shop over a garden or forecourt,

some 20 ft. or 30 ft. in depth, and uniting it to the original dwelling. From the divided tenure of these properties, this change is wrought in a very irregular fashion; an architect is rarely, if ever, consulted upon the work, which is usually done in the cheapest manner by a local builder. It will occur to us what fine architectural features might be wrought were the matter treated on a comprehensive scale. The shops of symmetrical elevation, crowned by cornices and balconies enclosing an upper terrace of communication with the upper floors, which in turn might be converted into shops; or, in any event form most attractive dwellings.

Having concluded my observations (necessarily brief and incomplete) upon those practical and constructive considerations, which, from the business aspect, form the chief branch of my subject, it is desirable, perhaps, that I should make more extended and general reference to the apparent results of those considerations upon the æsthetics of design. It would be but affectation on my part, and an ill compliment to the matter under consideration, to say that I had no opinions to offer. Such, however, of my remarks as may have a critical tone, are made with some diffidence, and much deference to the body of this Institute. I am far less desirous to advance any views or suggestions of my own than to place this subject in such a manner before you as may lead to its profitable consideration, and perhaps in some small degree advance the street architecture of the future.

May I say that one strongly-pronounced result of business requirements upon design is to confirm, apparently, the appropriateness of styles wherein a need of vertical composition does not exist? This refers with greatest force to structures of considerable length in frontage, and in which the ground-floor is devoted to large areas of shop-fronts. Following this view, it may be noted that such vertical surface-features as pilasters, or even quoins, are best avoided in the upper stages of the composition, unless they can be carried through to the ground-level. Any emphasis given to such features by moulded capitals and bases, or by bold rustication or vermiculation of quoins, will also usually aggravate their ill effect. And from this cause, horizontal bands of ornament, such as carved strings to imposts, and piers between the upper windows, should rarely be allowed to assume the proportions of capitals. In fact, it would seem desirable to treat all compositions above a long unbroken shop-front in the broadest horizontal manner.

Shop-fronts themselves seem best with plain square lines of framing. Elliptic or other arched forms, whether in wood or metal, are so visibly inadequate to any support of the superstructure, and, as mere decorative lines, are so foreign to the fitness of the materials, that they are best avoided. It seems, certain, also that, for the attractive display of shop-wares the window needs but an unostentatious frame; and the more neutral and subdued its tone and colour, the more likely are the objects displayed, if themselves of richness or beauty, to be seen to the best advantage. These principles seem to be fairly understood and recognised in the most notable of recent shops. A scarcely better example of this treatment could be brought to your notice than Messrs. Jackson & Graham's improved premises in Oxford-street (laughter); in simplicity, breadth, and refinement, the frontages of shops are eminently pleasing; and the carefully-subdued features of the superstructure, considering the difficulty of constructing harmony out of discord in adapting existing buildings, bear high additional testimony to the architectural attainments of an artist whose authority upon "ornament" has become world-wide. I think the public, at any rate, will say that it is successful.

I have before referred to the fact that the larger proportion of our new business structures are of Classic or Italian design. It would be more correct, perhaps, to say that they are not of Gothic design, as we understand its leading vertical features. There are a number of erections, and more than one from its size and position, of architectural pretension, in which there have been attempts to engraft Gothic details upon Classic outlines of form. Shall I be supported in the opinion that they are among the least successful of modern buildings? Restlessness is written upon their limbs, inconsistency graven upon their brow! The roll and hollow which give beauty and vigour to a Gothic jamb, become a weak bead upon an Italian impost. The natural treatment of Gothic carving lacks, upon broad and deep surfaces, the sturdy yet refined strength of the more conventional Classic volute. And when the difficulties of the union of styles are felt to be overcome by the ever-ready stratagem of a "stop-chamfer," further criticism may be withheld. Nemesis will overtake them.

Of consistent Gothic design, it is, however, impossible to infer that it is incompatible with full and fair compliance with business requirements. There are many admirably treated buildings in various directions, and some of the very best, perhaps, adorn the collection I have been able to bring here to-night. The most satisfactory appear to be those wherein the centre of the composition is given up to light by mullioned and transomed domestic windows of broad surface, the solid flanking piers carrying an arched superstructure at the topmost story. The pointed gable is a mode of finishing a roof towards a street as consistent in construction as it is expressive and picturesque in effect; the open valleys between the gables, where repeated in rows, lets light into the street. Most of these Gothic buildings, however, suffer from being placed between broad square Italian elevations. It would be interesting to see a really large group, as one side of a street, with its gables, restoring the features left to us here and there in a few Mediæval towns, and not disturbed by too close contact with Classic breadth.

The Thames may for business uses be considered sufficiently a street for me to call attention to Paul's Wharf,—a storage warehouse familiar to most of us as a most appropriate application of this style to a purpose. Nearer to London Bridge is another water-side warehouse, Messrs. Spicer's, of considerable merit, though differing in treatment; their architects have kindly contributed to my illustrations some other thoughtful studies of street architecture.

A massive Gothic wedge has been driven into the very heart of the City in the shape of that handsome block of shops and offices known as Mansion House Buildings. As the largest experiment, perhaps, yet made in adapting the style of business requirements, it demands and deserves more than a passing remark. The experiment is a bold one, for the site is opposed and flanked upon all sides by Classic buildings of more or less acknowledged merit and importance. The Royal Exchange, the Mansion House, the Bank of England, and last, though by no means least, that magnificent structure, the building of the Safe Deposit Company. All these hem it in and confront it, whilst the circular turret artistically terminating its roof is challenged in rear to a contrast by the famous steeple of St. Mary-le-bow. Its accomplished designers, having regard to the primary importance of business requirements, appear to have shown much discretion in the selection, for this long façade, of precedents suitable to horizontal treatment, and seem to have done the utmost under the circumstances to minimise the vertical tendencies of a Pointed style. Had it been possible to give to the ground story a vigorous arcade, and to reserve the structure for quiet, unobtrusive official or professional occupation, its success as a design would have been more complete. That substructure of shops, however, seems fatal to its success; and the discomfiture is somewhat increased by the close vicinity of its sturdy Classic rivals.

It may be but an unreasoning sentiment, and difficult of logical defence, but in this country Pointed architecture *is* associated in the popular mind with religious, or at all events, non-secular uses. It is the one style in which our Mediæval churches and monastic and collegiate buildings were erected, and the examples left to us of the castles and domestic buildings of those times almost invariably show features quite distinct from those of ecclesiastic structures. Taking the very latest type of our English Pointed, as affording us more abundant proofs, it may be noticed that it is scarcely possible to confound the features of a Tudor house with those of a church of the same date. It is something of this sentiment which receives a slight shock at seeing dressing-bags and hosiery enshrined in windows having the foliated framework of a chancel screen. And one feels sure that the architects must be grieved in spirit at seeing those beautiful geometric windows on the upper floor, recalling to memory the Pointed arcade of some cathedral clearstory, disfigured by business announcements in letters bold as brass, and ranging from "Accidental death" to livelier subjects. It would appear that for such buildings Gothic architecture should confine itself more absolutely to its domestic types.

Of business structures other than those I have been able to bring pictorially to your notice, may be mentioned some granite buildings in Cannon-street, and, in Cornhill, the Office of the Scottish Widows Fund; both are remarkable for the bold and successful dealing with light, and for the splendid polished granite largely used in construction. In the Cornhill building the manner in which the entrance to Change-alley is brought under the general elevation without impairing its light, use, or general effect, is also worthy of notice. No. 39, Cornhill, another enterprising tailor's, shows the keen appreciation of this trade of light; and the bold efforts occasionally made to gratify it. Palmerston Buildings, in Bishopsgate, and some similar structures by the same authors in Gracechurch-street, are notable as successful blocks of offices; and in Queen Victoria-street are interesting and more or less satisfactory structures, all working out the business problems of the day.

We can, however, scarcely leave Queen Victoria-street without a regret that in the building of new offices better opportunity was not taken to house the leviathan of the press in a temple more worthy of the *Times*. It is some compensation, however, for us to see its conservative contemporary asserting the virtue of consistency in a far higher appreciation of the *Standard* to which such architecture should strive to attain.

I feel that having arrived at the utmost limits by which my paper should trespass upon your time, I am yet little more than across the threshold of this great subject. To cross the threshold is, however, to be within the walls; and once there, I may safely and properly resign the conduct of it to the consideration of those more experienced and distinguished members of our body; who, to the scattered and incomplete materials thus laid before them, will be able to add all that is essential to advance the business architecture of the future. An enlightened and unprejudiced recognition of public wants, and a consistent application of architecture to those wants, will line our streets with stately and solid structures, regarding which future writers will merge all questions of style in one significant sentence: "The style of Good Queen Victoria."

## THE HISTORY OF GAS-LIGHTING.*

HAVING traced the introduction and progress of gas-lighting in London, we will give a short description of the actual manufacture and purification as adopted in the best gas-works.

1. *Preparation of Crude Gas.*—Durham coals mixed with about 10 per cent. of cannel are heated to redness in large fire-clay retorts placed horizontally in a furnace. Five or seven, and sometimes in large works as many as twelve or sixteen, retorts are heated in one furnace. The retorts in the upper part of the furnace are often of cast iron. In some London works, retorts are used built up of fire-bricks cemented with quartz sand and a little lime. At the end of the retort, which projects beyond the furnace, is fitted a cast-iron mouth-piece by means of screw-bolts, and a lute of iron filings and gypsum made into a paste with a solution of ammonium chloride. From the upper part of the mouth-piece issues the pipe conveying the mixed gases and vapour from the retort; at the end is fitted the iron lid, which is removed when the retort has to be freshly charged. The coal is inserted in an iron scoop, which is pushed into the red-hot retort, overturned and quickly withdrawn, leaving the charge behind. The iron lid is fastened on, and the distillation continued for four or five hours. The lid is then loosened; the gas at the mouth set on fire to prevent it forming an explosive mixture with the air. As soon as possible the red-hot coke is raked out and a fresh charge inserted. The coke is partly used for firing the furnaces, the rest being quenched with water and sold. The gas and vapour passing from the various retorts enter a large iron pipe, from 1 ft. to 2 ft. in diameter, called the hydraulic main. At the bottom of this main is a layer of tar, into which the pipes from the retorts dip, the whole forming a valve preventing the return of any gas to the retorts. The gas has now to be cooled down, and the condensable products of the distillation to be removed from the permanent gas. For this purpose the gas is made to pass through a series of vertical iron pipes, which are sometimes cooled externally with water. At the bottom of these condensers is an iron tank in which water and tarry liquid collect, and from which the fluids are drawn off

* See p. 1092, *ante*.

by means of a syphon-tube to the tar-cistern. The most volatile and most troublesome to remove of the tarry impurities is naphthaline. Its flaky crystals are found deposited in the mains at great distances from the gasworks. It cannot be entirely removed by merely cooling the gas. It is found in practice undesirable to cool gas below 45° Fahr.; for below that temperature much of the light-giving hydrocarbon vapour is condensed, and consequently the quality of the gas injured. The best absorbent of naphthaline is coal-naphtha itself; accordingly it is usual to prolong the pipe leading from the hydraulic main to the condensers, so as to present a large surface of naphtha to the gas as it passes. In most of the larger works, the gas, after passing through the condenser, is made to ascend through chambers of cast iron, filled with fragments of coke kept constantly moistened by a stream of water. The effect of this "scrubber," as it is technically termed, is to thoroughly wash and cool the gas, whereby a great saving of purifying materials is secured. Between the scrubber and the purifier, or sometimes between the hydraulic main and the condenser, is placed a machine, called the "exhauster," for pumping the gas from the retorts, so as to reduce the pressure inside them. When the tension of the gas inside the retorts rises much above that of the atmosphere, the gas escapes through the pores of the fireclay, and through the joints of the mouth-piece. The exhauster is necessary also for conveying the permanent gases quickly away from the retort, for the illuminating constituents of coal-gas are soon reduced and their light-giving property destroyed by contact with the red-hot fire-clay or coke. The pumping apparatus consists of a series of wrought-iron bells, inverted in a water-tank over cylinders communicating with the main. Each bell and cylinder has a flap-valve at the top, which allows gas to pass in one direction. When the bell is raised by means of a crank-shaft, worked by a small steam-engine, the gas is sucked out of the cylinder into the bell, while in the descending stroke the valve of the cylinder closes, and the gas passes out through the valve of the bell. The water in the tank keeps the apparatus gas-tight, and, as there are no parts of the bell and cylinder in contact, the friction is reduced to a minimum. Another form of exhauster, much used on the Continent, consists of two solid cams made to revolve rapidly, almost, but not quite, in contact. The partial vacuum caused by their rotation in opposite directions pulls the gas through the exhausting-chamber.

On leaving the exhauster, the gas has to be purified from all compounds of ammonia, from sulphuretted hydrogen, and from carbonic acid. To effect this purification, an immense number of processes have been adopted at different times. Originally, Clegg's wet-lime method was the only one employed, but the great pressure required to force the gas through the column of fluid, and the difficulty in disposing of the fœtid liquid, so as not to cause a nuisance, led to the adoption of the dry-lime process. This method is now almost universally employed, but only after the gas has passed over some other purifying material; in fact, lime is used chiefly to absorb the carbonic acid present in the crude gas. Laming, in 1847, patented the use of calcium chloride and oxide of iron mixed up with sawdust; but it was not till two years later that he took out a patent in France for the revival of the spent oxide by exposure to the air. The sulphuretted hydrogen in the coal-gas reacts with the oxide, forming sulphide of iron and water. After some time the purifying action ceases. The mixture is removed from the purifier, and atmospheric air passed over it; or the coal-gas is passed through another similar purifier, while air is drawn through the one that has been in use. The sulphide of iron is thus decomposed, and oxide of iron re-formed. The sulphur is partly deposited and partly oxidised to sulphuric acid, which combines with any ammonia present. The oxide after "revival" is again employed, and this process of absorbing sulphur and replacing it by oxygen can be repeated until the material gets choked up with deposited sulphur. Cyanogen is also removed by oxide of iron, and methods have been employed of extracting the ferro-cyanogen to form Prussian blue. The ammonia, after losing to the oxide its sulphuretted hydrogen, forms with the carbonic acid carbonate of ammonium. The chloride or sulphate of calcium in the Laming's mixture acts on this body by double decomposition, calcium carbonate and either chloride or sulphate of ammonium being formed. The rest of the carbonic acid is removed by passing the gas through a dry-lime purifier. The best lime is employed for this purpose. After being crushed and finely sifted, it is slaked with water until it just preserves its consistency when moulded. The lime is spread evenly on screens to the depth of 2½ in.; in France beds of moss are placed on the trays, over which the lime is spread, to expose a larger surface to the gas. After passing through the porous lime, and losing its carbonic acid, the gas is passed into large iron gas-holders and is ready for use. Between the lime purifier and the holder the gas passes through a meter, called the station meter, in which it is measured and the quantity registered. Attached to this meter is a piece of mechanism which registers, by tracing a curve on paper, the *rate* at which the gas has been passing through the meter. If any irregularities in the flow of gas have occurred, the pencil line will show when the decrease took place, and when the deficit was made good. By means of this tell-tale the manager of a gasworks knows which set of men have been to blame.

The gas-holders are composed of two parts, the tank containing water, and the holder itself, in which the gas is contained. In erecting gas-holders, much depends on the nature of the ground. In a rocky or hard soil it is cheaper to dig a tank and make it water-tight with bricks and hydraulic cement; but where the soil is marshy or unstable, it is better to erect an iron tank above ground. The gas-holder proper consists of a sheet-iron vessel, open at the bottom, and inverted into the tank of water. It has perfect freedom to rise and fall, being held in position by upright rods fixed round it. The gas enters the holder from a pipe opening just above the level of the water, and owing to its lightness, it pushes the iron holder up and supports its weight. The outlet-pipe also opens just above water level, and, when it is open, the weight of the iron-holder forces the gas down it, and so into the mains. The water in the tanks prevents any communication between the gas and atmosphere. The tension of the gas in the mains varies with the height of the holder above the water in the tank, and also with the quantity of gas being consumed at any particular time. When shops and other large consumers turn out their lights at night, the pressure in the mains at once increases, the lights left burning increase in brilliancy, and gas is wasted. To remedy this change of pressure, an instrument styled a "governor" is now usually adapted to the main. It consists of a small gas-holder and water-tank, the inverted bell being counterpoised, so that it can be adjusted at any particular height. Attached to the bell is a conical stopper, passing through a diaphragm in the outlet pipe, with its apex pointing upwards. If, now, the bell is raised, the cone rises in the outlet-pipe and retards the flow of gas to the mains. Now, when lights are turned out, the tension of the gas increases both in the mains and in the holder, for it cannot escape so fast as it did before. In consequence of this increased tension, the bell in the governor is lifted, and as it rises it plugs the outlet and so prevents too much gas passing into the mains. By this simple contrivance a supply of gas, adjusted to the need of the consumers, is secured.

The history of gas-lighting would be incomplete without some reference to the many methods which have been tried of making gas without distilling coal. Lebon, it is said, began his first experiments by carbonising wood. Taylor and Martineau took out a patent for distilling oil in retorts, and this method of preparing gas was tried on a large scale in many towns in England. Oil-gas works were erected at Edinburgh, Liverpool, Bristol, and many other places; but the process proved a failure, and the several companies employed in the manufacture adapted their works to distilling coal.

Where coal is inaccessible for distillation, wood, peat, and resins, are profitably employed for making gas. These substances do not require the same high temperature as coal does for its carbonisation. Bituminous shale sometimes supplies the place of cannel. The process in all such cases is essentially the same, namely, distillation in retorts, condensation of tarry compounds, and more or less purification according to the nature of the substances distilled. In England, the cheapness of coal renders it the most economic agent for producing light.

In 1829, Michael Donovan patented a method of preparing illuminating gas by carburetting the gas formed by the decomposition of steam passed over red-hot coke. This patent has been the father of innumerable "water-gas" patents wearing many forms and many names. The specification runs, "This invention relates to the enriching those gases which afford little light while burning, by substances which will impart to them a higher illuminating power, and may consist in bringing the gas (by preference) produced by the action of steam or coke, &c., heated to redness, into contact with the liquid or vapour of spirit of turpentine, spirit of tar, coal naphtha, naphthaline, or other substances, heated or otherwise, and employing the combined mixture as the illuminating agent." Among other patents taken out for practically the same invention may be mentioned those of Lowe, Manby, Cruckshanks, and Stephen White. White's process, patented in 1850, was tried on a large scale at the Manchester Gas Works, and at the works of the South Metropolitan Company. The cause of its failure was the irregular supply of hydrogen. Sometimes the diluent was in excess, and then the burners gave scarcely any light; at other times the supply of hydrogen failed, and the rich hydrocarbons, insufficiently diluted, burned away with a smoky flame, producing a bad light at a great expense. After a long trial the process was found a heavy loss, and was given up entirely. About the same time a company was started in Paris, under the name of the "Compagnie Générale du Gaz électrique," with the idea of carburetting the gas obtained by decomposing saline solutions by electricity. The company proposed raising a capital of two millions sterling, and their prospectus stated that the hydrogen could be made at the small cost of about 3½d. the 1,000 cubic feet. They issued a report signed by certain French *savants* favourable to the new process, but a practical trial soon convinced them that to make hydrogen by electrolysis would cost just one hundred times what the prospectus stated. The great bubble burst, and the world heard no more of *Gaz électrique*. Notwithstanding the experience gained at Manchester and elsewhere, "water-gas" has lately made another bid for public favour. The "New Gas Company" appeared in 1873 with a vast flourish of trumpets and a proposed capital of 250,000*l*. The first part of the process consists in "the production of mixed gases by bringing super-heated steam into immediate contact with highly-heated coke, or coke and iron, or charcoal, in a series of retorts, through which it is passed in such a way as to effect, as nearly as possible, its entire decomposition; and thus a gas is generated composed of hydrogen, carbonic oxide, carbonic acid, and sulphuretted hydrogen, which is the *heating gas*." The sulphuretted hydrogen is removed by passing the gas through oxide of iron, and the carbonic acid, if necessary, by caustic soda. The second part consists in "passing the heating gas through rectified petroleum spirit of the specific gravity of about 68°, thus converting it into lighting gas." The idea of making economic *fuel* by such a process is absurd on the face of it. To make *one* fuel, *four* supplies of fuel are consumed: one to boil the water, one to superheat the steam, one to put into the decomposing retorts, and the last to heat those retorts to redness. The economic aspect of water-gas for lighting is scarcely if at all better. The process is far more complicated and costly than that of making coal-gas, but in spite of warnings from men who had actually proved the fallacy of the "new gas," the money was subscribed and works commenced. The "new gas" made its *début* at Chichester. The light was good, but unsuited to burners with the ordinary narrow openings. A mixture of equal volumes of "new" and coal-gas was then employed with better results, but the new gas was soon abandoned and the use of coal-gas resumed.

Water-gas before carburation is a mixture of hydrogen, carbonic oxide, and carbonic acid. This mixture burns with a non-luminous but hot flame, the temperature of which is increased if the gas be purified from carbonic acid by lime or otherwise. Carbonic oxide is an active poison; 2 per cent. in any atmosphere, it is said, would prove fatal to human beings. An escape of water-gas would, therefore, be highly dangerous, and its presence in gas was forbidden by the authorities in Paris. It is possible to remove the carbonic oxide and carbonic acid, but the cost of such removal, though the illuminating power is increased, is too great for the commercial success of the system.

The principle of using common air to convey the vapour of volatile hydrocarbons to gas-burners was first patented by Mansfield in 1847. His idea was to "manufacture from bituminous

matters, by acting on them at suitable temperatures, spirituous substances, which are so volatile that a current of atmospheric air (at ordinary temperature) passed through them may, when ignited, continue to burn with a luminous flame till all, or nearly all, such substances are consumed." Lowe applied the method, but abandoned it after a fair trial. In 1862 Mongreul took out a similar patent and set on foot the "Photogenic Gas Company." 40,000*l.* were to be raised, one half of which was to go to the patentee. The money was subscribed, but went in fruitless experiments. The "crude idea" could not be reduced to a practical form. After three years the company was wound up, and "air-gas" was lost to sight, only to re-appear the following decade with a fresh company and a new name. The "Air Gaslight Company," Limited, sprang into existence in October, 1872. It differed from previous air-gas schemes in no important particular. The new patentee was to receive 100,000*l.* for his invention, which claimed to surpass similar inventions by reason of some gum or resin being dissolved in the petroleum spirit. This air-gas was exhibited in 1873 at the Crystal Palace, one-half the nave being lighted with the ordinary coal-gas, and the other by the air-gas. Some doubt was expressed at the time whether coal-gas had not mixed with the air passing through the petroleum. Though reported as a great success, the Crystal Palace Company did not adopt air-gas for lighting the Palace. Air-gas was tried again at Richmond, and again at Fulham, but after a career of rather more than twelve months the directors petitioned to have the company wound up. The patentees naturally opposed the petition, and a majority of shareholders wishing to proceed with further experiments, the Court of Chancery refused the petition. The company has since been wound up.

Another air-gas was started in 1873, called after its patentee, the Kromschröder gas. The inventor only claimed an improved method for making air-gas, by passing the air through a chamber containing wool or horsehair soaked in hydrocarbons, instead of making it bubble through a layer of liquid petroleum. The air-forcing apparatus was driven by clock-work, and the vaporising chamber surrounded by a thick jacket of non-conducting material. This, the patentee claimed, kept the generator at a uniform temperature, and protected it from extreme cold,—a doubtful claim, when it is remembered that liquids passing into the gaseous state render heat latent, and external heat was prevented from reaching the chamber by means of the non-conducting covering. Great Marlow was lighted by this gas, and a mixture of it and coal-gas in the summer of 1873, and a company was formed, with a proposed capital of 120,000*l.*, to carry out the scheme on a larger scale.

Of the late Eupion Gas Company little need be said. It was the Kromschröder scheme under a more taking title. The company was floated early in 1874. The business of its promoters was to take in the public, and dispose of their shares while still at a premium. They succeeded only too well, but their zeal outran their discretion. They paid the penalty of making their prospectus a trifle too rosy. Of Eupion gas itself the public never made the acquaintance.

That air or water gas should ever be able to *compete* with coal-gas in England is impossible, so long as our coal supply holds out. The only available source of the light petroleum, which all the new companies use for the production of light, is the crude petroleum from America, especially from the oil region of Pennsylvania. The total annual yield of all the wells in the United States and Canada is a little above 250 millions of gallons. The commercial spirit, which has to be separated by the refiner from the crude petroleum to render the latter safe for burning, is about 10 per cent. of the whole, and has a specific gravity of ·705. There are, therefore, a little more than 25 millions of gallons of commercial spirit, which yield only 25 per cent. of spirit sufficiently volatile to be used by the air or water-gas companies, who require a liquid below ·660. Seven millions of gallons, then, is the total annual supply of "light petroleum," a quantity insufficient to carbonise 6,000 millions of cubic feet of gas, a quantity one-third more than that supplied by the Imperial Company alone, before its late amalgamation with the Chartered.

The demand for petroleum spirit is now far below the supply; should these schemes prove partially successful, the price would rise with the demand, and the cost and danger of freight would make it more profitable for the Americans to keep it to compete with coal gas in the New World. On a small scale, and where coal gas is not to be had, one or other of these petroleum gases may be found useful. Air-gas has been successfully employed in country districts.

The Air Gas-light Company, after failing in their attempt to supersede the use of coal-gas, have found, under the title of the Protector Lamp and Lighting Company, their sphere in the manufacture of a small apparatus, driven by clockwork, for supplying air-gas in country houses and buildings at a distance from coal-gas works. The apparatus consists of two parts, a blower and a generator. The blower is constructed like a wet-meter, the wheel being set in motion by a weight which requires winding up. It is placed in a dry cellar of the building to be lighted, where the temperature is fairly uniform throughout the year. Air is driven from the blower through the generator, which contains the volatile hydrocarbons, and which is best placed outside in an out-house or underground vault. The generator consists of a reservoir for the gas-oil, communicating with a series of flat metal tubes, which are kept partially filled with the liquid hydrocarbons, a space being left for the air to pass over them. After traversing the tubes, the air, saturated with hydrocarbon vapour, passes into a small holder, which acts as a governor to regulate the pressure in the service-pipe. In hot weather, when the hydrocarbon vapour comes off more freely, the air is passed through fewer of the metal tubes, and thus an excess of light-giving gas avoided. When a burner is turned on, the pressure in the holder diminishes, and the weight begins to set the blower in motion, keeping up a continual stream of air through the apparatus. When the burner is turned off the gas accumulates till the pressure counterbalances the weight, and the blower comes to rest. With oil-gas at 2*s.* a gallon the company estimate the cost of 1,000 cubic feet of thirty-candle gas at 7*s.*

The principle of carburetting coal-gas with hydrocarbon vapours has also been applied many times in this country. White's original hydrocarbon process consisted in distilling coals at a high temperature, and passing steam into the same retort. By this means a large yield of a poor illuminating gas was obtained, which was rendered luminous by passing it through spirit from resin. A project was started a few years ago in the city for carburetting coal-gas by causing it to pass through a small "generator," containing liquid hydrocarbons, attached to the street lamps. The light proved to be very irregular, and the inventors had to remove their generators. Failing to profit by this experience, the "Patent Gas Economiser Company" started in 1874 to carry out a patent for the carburation of coal-gas, the carburation to be effected on the consumer's premises by means of a "generator" containing petroleum. The process had the same defects as the previous one, and failed accordingly.

The "patent gas" was another "crude idea" dearly paid for by sanguine investors. The process was an attempt to combine the manufacture of coal-gas and that of oil-gas, or rather tar-gas. The method consists in distilling coal at a comparatively low temperature, collecting the condensed oil and tar and submitting them to a second distillation, passing their vapours over heated charcoal, and finally mixing the permanent gas so obtained with the gas originally obtained from the coal. A larger volume of highly-luminous hydrocarbons are so obtained, than by the single distillation of coal at a high temperature, but the process takes longer time and is less economical than mixing cannel with ordinary coal and distilling the mixture once for all. The "Patent Gas Company" started operations at the Barnet Works. Their operations were a dead loss to the shareholders. The "second distillation" was confessedly a waste of money, as their published report stated the value of the coal-tar to be greater than its value when converted into gas. Complaints were made of the quality of the gas, and finally the works at Barnet were abandoned, and coal-gas reigned in its stead.

Other schemes of improving coal-gas without the aid of hydrocarbons have been mooted from time to time. About 1838 Gurney brought out his "Bude Light." His plan was to convey oxygen to the interior of the flame, either of oil or gas lamps. His method was found too expensive for common use. The same principle has, however, been lately brought forward again by Tessié du Motay. An exhibition of this oxygen light was given at the Crystal Palace in 1871, and during the Vienna Exhibition in 1873 the Empress Elizabeth Railway Station was so lighted. The oxygen, prepared by the action of steam on sodium manganate, was led by a separate pipe to the interior of a flame produced by a specially carburetted gas. The light was described as being wonderfully clear and steady, delicate colours and green foliage appearing as distinctly as in daylight. Previously, du Motay had lighted the space in front of the Tuileries and before the Hôtel de Ville by a modification of the lime-light. Jets of ordinary coal-gas and oxygen were made to play on cylinders of Zirconia. The Zircon light is easier to prepare and more constant than the lime-light, and may be useful for military purposes, signals, and illuminations. The light produced by coal-gas or hydrocarbon vapours burning in oxygen, as tried at Vienna, is too expensive for common use; oxygen deteriorates in passing through the mains, the cost of service and repairs is double, and the supply requires to be carefully regulated by the consumer.

Another invention, brought out about the same time as the Bude light, is "platinum-gas," introduced by Cruckshanks. The light is derived from a coil of platinum wire heated to whiteness in a flame of hydrogen. This plan was tried on a large scale at Narbonne, and continued in use some four years. To heat the platinum, water-gas, freed from carbonic acid, was employed. The process was given up in favour of coal-gas, but the steady light, and the absence of sulphur compounds, led to its employment in several silver and gilding manufactories in France.

*Strand.* J. GARDNER.

## STABLES AND COACH-HOUSES IN THE OLD BAILEY.

WHEN the London, Chatham, and Dover Railway Company constructed the Holborn Viaduct Station they purchased a considerable area of very inferior property in the neighbourhood of Fleet-lane and adjoining courts, extending from the railway boundary to the west side of the Old Bailey. On the site of a portion of this, immediately opposite the principal entrance to the prison, a large and substantial block of buildings, of a novel and composite character, has just been erected. The elevation fronting the Old Bailey is 60 ft. in height, and in addition to a deep basement and ground floor, contains four stories, each story containing a range of six windows. The ground floor is carried up with Portland stone piers, and the rest of the elevation is in white brick, with Portland stone pilasters. A carriageway at the south side leads to the rear of the premises, which may be described as a spacious court-yard, extending westward to the railway. From the Old Bailey the floor level is reached by a descending gradient, and around the entire area have been erected coach-houses, stables, warehouses, and workshops. The coachhouses, twenty-four in number, are on the lower portion, nearly on a level with the basement of the front part of the building. Above the coach-houses are the stables, with stabling for sixty horses, the approach to the stables being by an inclined plane and a gallery carried round the courtyard, immediately above the coach-houses. The stable fittings are of a substantial character. The floors are in concrete. The floor above the stables is in immediate connexion with them, and for forage purposes. The story above the last named contains the warehouses, the floor of which is strong, and of fireproof construction,—iron and concrete. The workshops are in the floor above, the floor being like that of the warehouses. Stone staircases at each end of the building, and altogether distinct from the stables, lead to the warehouses and workshops above, all of which can be either let separately or in portions. On the ground floor at the west end, immediately contiguous to the coach-houses, is a forge and veterinary department. The site has thus been utilised for a building combining mercantile offices, warehouses, workshops, together with a mews.

The architect is Mr. W. S. Witherington, of Leadenhall-street; and the builder, Mr. Elkington, of Golden-lane.

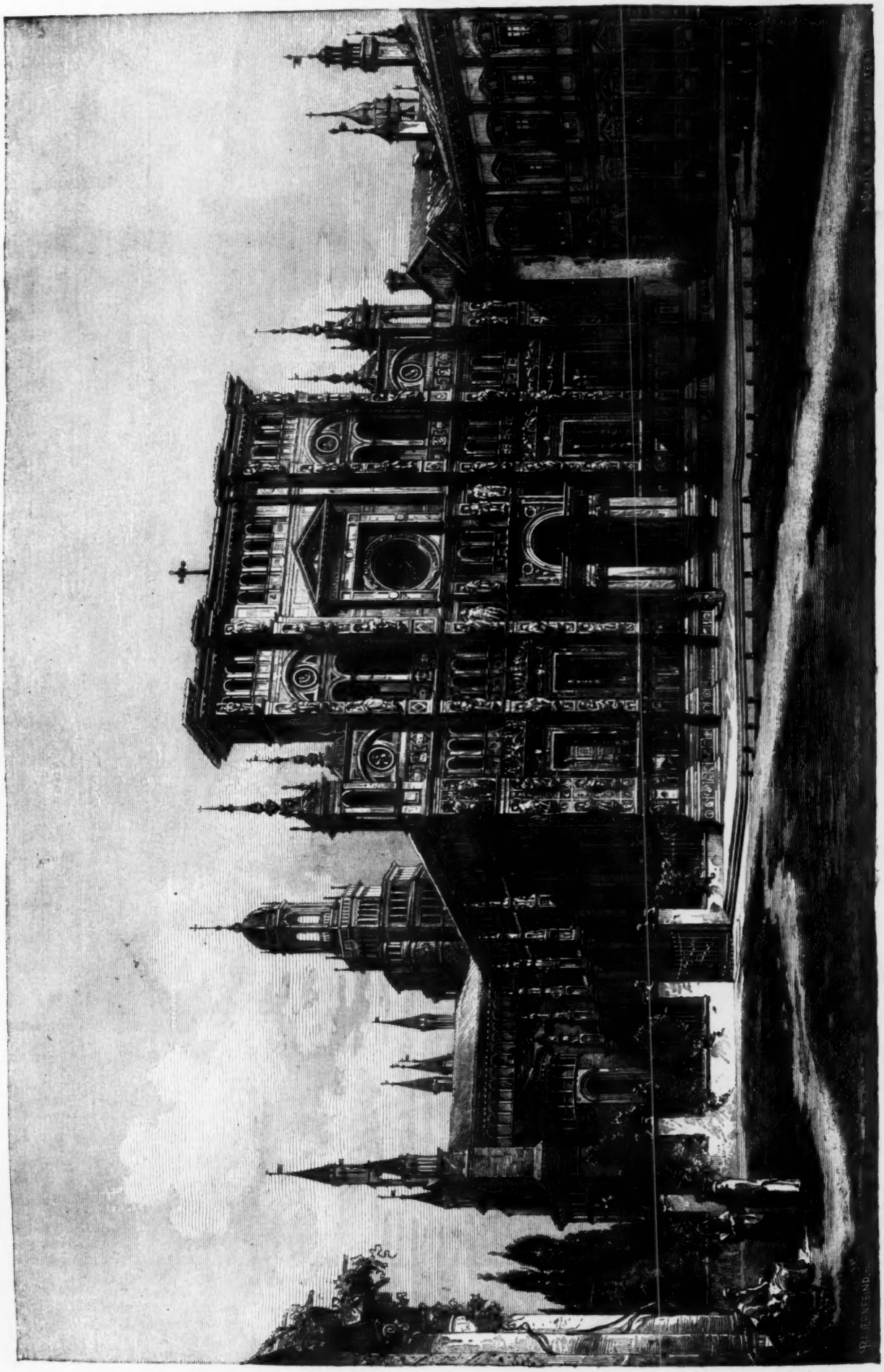
**A Popular Mayor.**—Mr. James Fowler, architect, has just completed his second year of office as Mayor of Louth (Lincolnshire), and was entertained at a banquet by the members of the Council, on Thursday evening, the 9th inst.

MONUMENT TO LEONARDO DA VINCI, MILAN. [See p. 1136, *ante*.

## A WARNING NOTE FROM HACKNEY.

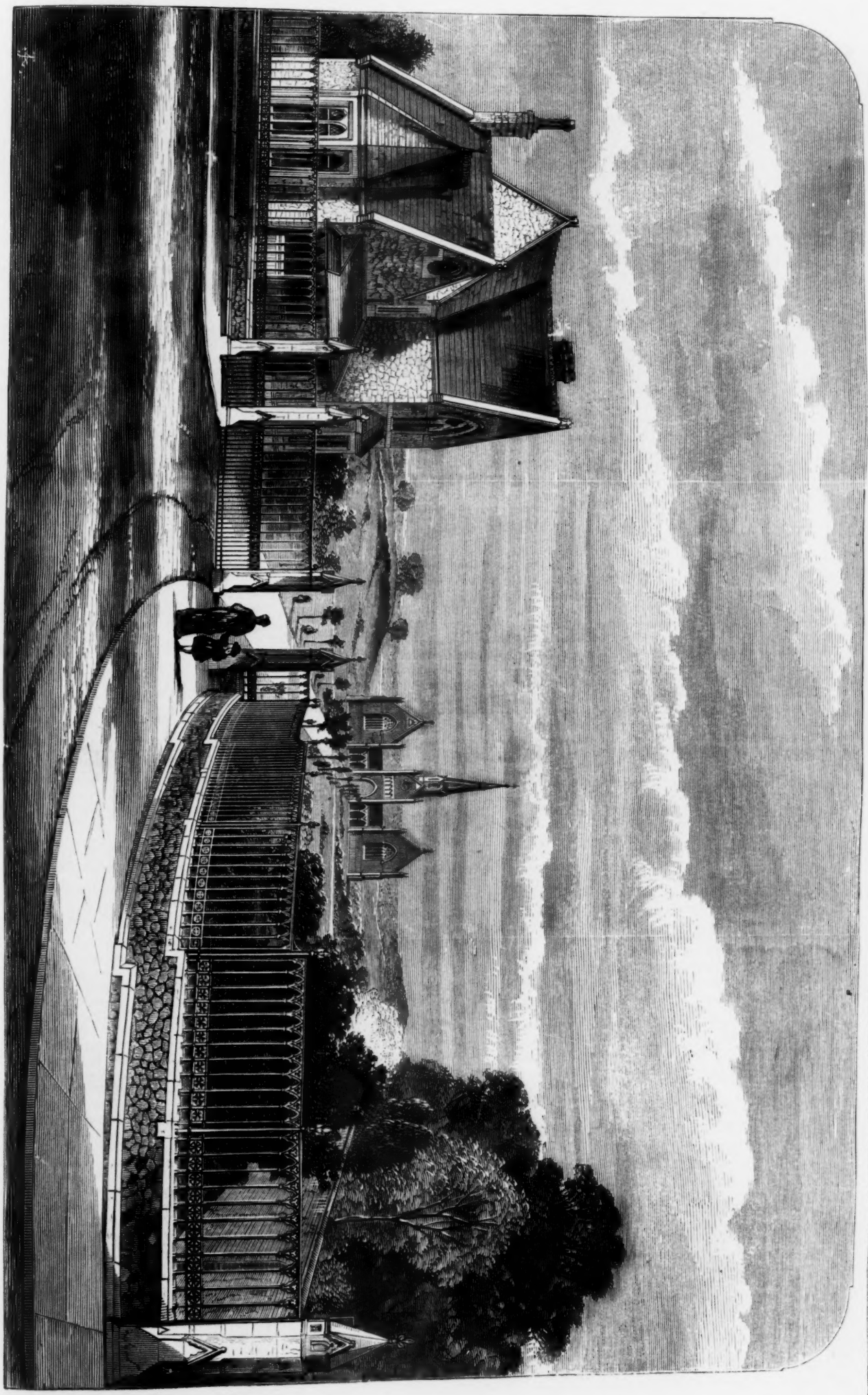
If confirmation of the creed long preached in this journal were needed, the outcome of the series of nefarious building and subsidiary abuses in the parish of Hackney and vicinity would in itself put an end to all doubt upon the question. For several weeks past small-pox and other zymotic diseases have been prevalent in the quarters indicated, and each week has witnessed an increase of the epidemic. What is most noteworthy in relation to this outbreak, and escaping the notice of the medical officer of health, is the fact that a large number of cases have occurred in houses built within the last few years, and others built quite recently,—houses whose exact character we have over and over again described in these pages. At the last meeting of the Hackney District Board of Works, Dr. Tripe, the medical officer of health, stated that an unusually large proportion of the cases of small-pox had occurred amongst servants and other young persons above fifteen years of age, the largest number occurring in the district of Homerton. In speaking of reported cases, the doctor instances the rapidity with which the disease has spread since September, when only five cases came under his knowledge, advancing by forty-one in October, as against sixty-two in the first ten days of this month. We could supplement the doctor's list by some dozen more cases of small-pox that have come under our notice, happening in well-to-do families, and nearly a like number of scarlet fever. The cases are mostly amongst children.

As we write we learn that the small-pox has broken out in Hackney Wick, a district of the parish adjoining Homerton, even worse situated, and notorious for its run-up houses, its bad drainage or no drainage, its monster dust-shoots, and its unpaved roads and streets. If the epidemic once takes firm root in the low marshy and made-up land of Hackney Wick, we fear there will be a sad tale to tell. We witnessed a number of houses recently built upon made-up ground in this district that were occupied almost as fast as they were finished. Into their construction went green timber, and mortar and plaster of the most vile description. Before the plaster was dry upon the walls, the cheapest kind of paperhangings procurable was put on them, and as soon as these houses were occupied by weekly tenants, the whole "eligible" lot was put into the hands of the auctioneer, and sold as a "good investment." It is in houses of this description in the Hackney and adjoining districts that small-pox, scarlet fever, and other cognate diseases are rife. The medical officer of health of Hackney is not unaware of the danger that exists in some of the low-lying localities, and he is evidencing an anxiety and activity which are but poorly supported by the Local Boards of the district at the present moment.



THE CERTOSA, NEAR PAVIA, ITALY.

[See p. 1130, *ante*.



THE HAMPSTEAD CEMETERY.—Mr. Charles Bell, Architect.

## NEW CEMETERY AT HAMPSTEAD.

This cemetery was consecrated by the Lord Bishop of London on Friday, the 10th inst., and is now open for interments. It consists of about twenty acres of beautifully situated land, in Fortune Green-lane, in the parish of Hampstead, the surface of which is undulating and commands fine views of the surrounding country.

The ground is divided by a central avenue 25 ft. wide, forming the division between the Church and Nonconformist spaces, and is otherwise prettily laid out by paths and tastefully planted with the good kind of trees and shrubs. The chapels are in the centre of the ground, and are connected by a tower and spire, beneath which is a central archway. They are precisely alike in every respect, and are built in the Decorated style, of Kentish rag and Bath stone. There is a four-sided chancel to each, with seats for mourners and the public. The roofs are open timber, the principals resting on carved stone corbels, representing the wild flowers of the neighbourhood. The chancel arches are carried by red Mansfield shafts with devotional figures as bases to them.

The coffin rests are of a special design, and are stained and varnished, with brass mountings, and have none of the usual sombre look of those usually adopted.

Both chapels are warmed by stoves, and handsome brass standards are provided for gas. A small vestry is attached to each chapel. The central tower and spire are 90 ft. high. The roofs of chapels are covered with green slates.

The lodge is also of stone, as shown, and contains a commodious set of rooms for the superintendent, and also a board-room with open timber roof.

The whole of the work has been designed and carried out by Mr. Charles Bell, architect, of Union-court, Old Broad-street; the contractor being Mr. J. D. Hobson, of the Adelphi, whose contract for the chapels, lodge, &c., was 4,593*l*. The drainage of the ground has been executed under the superintendence of Mr. C. H. Lorne, surveyor to the Hampstead Vestry, and the landscape gardening by Mr. Weston, at a cost of 2,500*l*.

The entrance-gates and railings are of cast iron, and evidently produced with much care. All the members are worked in symmetrical form and sharpness, thereby giving the general outline a very pleasing effect. The castings were executed and fixed by Messrs. Alexander Macphail & Co., ironfounders, Upper Thames-street, whose very satisfactory work we had occasion to notice on a former occasion in connexion with the opening of the Deaf and Dumb Asylum, Margate, by the Prince and Princess of Wales.

The chairman of the Board is Mr. P. H. Le Breton; and the clerk is Mr. A. N. Baptie.

## FALL OF AN IRON AND CONCRETE FLOOR.

Dr. Diplock has brought to a conclusion a prolonged inquiry at the "Wellesley Tavern," Robert-street, Chelsea, touching the death of George James Clements, aged seventeen, who was in the employ of the London General Omnibus Company. On the 31st of October the flooring in some stable buildings in the course of construction by the company in Church-street, Chelsea, suddenly gave way, and the unfortunate youth being beneath was killed on the spot. The building in question was a two-storied one, and it appeared that a brick pier bearing an iron girder had collapsed.

The Coroner said he had applied to the Home Office for a Government inspector to view the premises, but he had been referred to the Board of Trade, and that without success.

Mr. Coger, of 5, Gloucester-street, Pimlico, said he was an architect and surveyor. He was the surveyor to the police, and, at the request of the Home Office, had surveyed the premises which had fallen. In his opinion the structure could not be deemed a dangerous one.

Mr. Sancton Wood, the district surveyor, was then called, and he deposed to having seen the plans prior to the commencement of the building operations, and he had seen nothing whatever to object to. He considered the building a safe one, and all the materials used were of the best quality.

The jury returned a verdict of "Accidental death."

It is to be regretted that something more precise could not be learnt. We saw the place after the fall. The weight of the floor must have been very great, judging from the thickness of the concrete on the parts left. It should be remembered that every cubic foot of concrete means more than a hundredweight. Another thing should also be remembered. A brick pier, or end of a wall, so long as it remains upright and whole, will carry a great weight,—a weight to be calculated,—provided the weight is carried down to the bottom. But if by accident the bonding is such as to permit a triangular piece of the pier or wall to be forced off, a comparatively small weight may be sufficient to bring about a catastrophe. For which reason not merely one good stone templet under the end of a weighted girder is necessary, but two, and even three at times, one under another, at small intervals, and covering as large an area as is practicable, may be desirable.

Dr. Diplock deserves great credit for the pains he took to arrive at a clear understanding as to the cause of the accident in Church-street.

## PHILADELPHIA EXHIBITION AWARDS.

Sir,—As Englishmen connected with the Centennial Exhibition, it has given us great pleasure, now that the awards are published, to find that Great Britain has secured so many, and in a country where pulling the wires to obtain a certain object is always practised. With one exception, and that is only a supposition, in which a New York firm was agent, has there been the slightest charge of foul play. The case alluded to is that of a prominent London manufacturer of umbrellas, and one who has obtained a medal at every Exhibition in which he has before exhibited. His case was opened, and the articles exhibited inspected and handled by the jury of the group. His rival competitor's case was never unlocked, nor the goods inspected, yet the medal was awarded to him. Is this fair play?

Shortly after the opening of the Centennial, difficulties arose from a breach of confidence of the American Commissioners. On our Commissioners being appealed to they declared their inability to do anything to help us. A public meeting was held at which the various foreign exhibitors were represented, and a deputation was sent to the Treasury department at Washington, where, after a considerable amount of red-tape work, certain concessions were obtained. Owing to the financial state of the country at the present time, the expectations which were held out to foreign exhibitors by the projectors of the Exhibition have never been realised, and all the valuable articles exhibited here will have to go back to the place whence they came. The attendance, taking the whole time, will, we suppose, exceed that of any other Exhibition, as many as 260,000 being registered in one day, and the sum total will in all probability reach the respectable figures of 7,000,000. The principal exhibitors of artistic metal work are Elkington & Co., of Birmingham. Their display is truly magnificent in metal, gold and silver, and electrotype; the Helicon vase and the Milton shield being the principal objects in the collection. A number of *fac-similes* of original art-treasures in the South Kensington Museum, purchased in England from this firm some time ago by the Pennsylvania Museum and School of Art, are exhibited here. This firm takes four medals.

Messrs. Barnard, Bishop, & Barnard, of Norwich, make a large display of artistic iron work in the shape of a summer pavilion in design very like a Chinese temple. The ornamental railing that surrounds it consists of an oblong panel formed by a sun-flower and six drooping leaves. The castings and workmanship show great skill in the working of iron, and the design has certainly the merit of being original. In the useful as well as the artistic combined in iron work, Messrs. Feetham & Co., of 9, Clifford-street, Bond-street, London, take pre-eminence. Their display of stoves and grates is the finest in the Exhibition, and they richly merit the two medals awarded them.

Steel & Garland, of Sheffield, make a very creditable display in the same line.

In household furniture several London firms compete, amongst them being Shoolbred & Co., Cooper & Holt, Collinson & Lock, and Wright & Mansfield. The latter firm takes the post of honour, and their display of inlaid furniture in satin and mahogany wood is, from an artistic point of view, perfect, and has raised both admiration and envy in the breasts of their American competitors. This firm takes two medals; the others before mentioned one each.

In church decoration, Class 217, it is universally admitted that Mr. Harry Hems, of Exeter, carries the palm for genuine art work. The oak chest he exhibits is altogether unique in the Exhibition, for, elaborate and profuse as it is, every item of carved work upon it is a study. It well deserves the laudatory terms in which the American *Art Journal* and the American press generally have referred to it. Mr. Hems also exhibits a large figure in alabaster of Our Lord with a child in his arms, entitled "Safe in the Arms of Jesus." This figure goes far to sustain the reputation England bears or thinks she bears for her sculpture. His exhibits have attracted considerable attention, and it is amusing to see the difficulty his representative in charge—a Mr. Charles Pickard, the very beau ideal of a jolly Englishman,—has to keep the crowd off at times; for such is the natural curiosity of the American people that anything that attracts their notice must either be handled or tapped with a stick (a necessary companion to every Yankee) in spite of the cards which are everywhere stuck up, "Hands Off, Please." A medal is awarded to Mr. Hems.

Singer & Son, of Frome, make a small but interesting display of ornamental brass-work, artistic metal-work, alms-dishes, and mural brass plates for churches. In terra-cotta work, for originality of idea and beauty of finish the Watcombe Terra-cotta Works, Torquay, take the first place. Exquisitely modelled little figures, suitable for the parlour, form the principal feature of their exhibit.

The largest exhibitors in this line are Doulton & Watts, of the Lambeth Pottery Works. Taking the whole of the exhibits of this firm in the different branches, they make a very fair display; and when we take into consideration that the commonest kinds of clay are used in their construction, it seems marvellous how such a high degree of excellence could be obtained.

As manufacturers in the finest kind of pottery, Brown, Westhead, & Moore have the largest and (excepting their next-door neighbour in the Exhibition, Messrs. Daniells, of London, who do not manufacture) finest display. The drawing and painting on the objects exhibited are executed in the highest style of art.

In tile work, Minton, Hollins, & Co. make a charming display, and it is amusing to watch the faces of the people when they are informed that the beautiful colours and designs shown them are made out of clay and burnt by fire. All that are in this country are importations from England, so that before this Exhibition the great majority of the people had never seen anything like it, and the price, owing to the high tariff of everything imported, practically excludes it from the reach of the people. Anything that is got up in a showy, cheap manner will sell, while real art may go begging for a customer.

In glass work, Messrs. Green & Nephew, of Queen Victoria-street, London, carry all before them, and their magnificent chandelier has attracted considerable attention. In the smaller ware exhibited by this firm the artistic taste shown, both in design and finish, are unequalled by any other competitor, either from our own country or any other country represented here. But, although living in this our adopted country, we are not so lost to judgment, nor blinded by conceit, not to look fairly at the whole matter. There is no doubt the awards cannot be rated very highly, their value is *purposely* spoiled, deliberately depreciated, by the awards being all alike, given as they are to wondrously different degrees of merit. The jealousy of America as a country has made its judgments and its prizes almost valueless as awards.

G. H.

## DOMESTIC ECONOMY, AND A MUSICAL EXPERIMENT.

At the annual meeting of the Watford Public Library, lately held, Sir Henry Cole, who presided, said in the course of his address,—I am not going to preach to you the great importance of biology, physiology, or any other ology; but I am going to ask the attention of Watford to a subject which I think involves a knowledge of all the sciences which are important for working people to know, and that is domestic economy. The Education Department in its wisdom has inserted domestic economy in the Code. I want to induce you to take an interest in domestic economy. Young ladies will never be married if they do not study it, and those who are married will never make their husbands comfortable and happy if they do not encourage it. Lord Sandon, the Vice-President of the Com-

mittee of Council on Education, announced two years ago that domestic economy was to form a part of primary education, and he took great credit to the Government for introducing it, which I think the Government greatly deserved. Domestic economy is in the Code defined to give a knowledge of food and cookery. You cannot do without food, and you would be no better than Esquimaux if you did not know how to cook it. It is also to give a knowledge of the laws of health—to do without doctors, although you have such admirable doctors on your committee. The next subject is "The dwelling, its heating, and ventilation." What a deal of science there is in that. It is a subject which puzzles everybody to this day. You do not know how to get the house cool when it is hot, or hot when it is cold. The next subject is "cleanliness," washing, washing materials, and all that. You know somebody was asked what is the evidence of the civilisation of the people, and one answer was "Why, printing," and somebody else guessed at something else. At last somebody said, "The real evidence of the civilisation of the people is the amount of soap used." Another subject under the head of domestic economy is cottage economy and thrift—not to spend more money than you have, not to get into debt, to economise all your resources, save up your money for a rainy day, and not to go to the workhouse,—all of which are worth consideration and practice. It seems to me that this embraces all the sciences which the people of this country should be instructed in. The Government has proclaimed that the people are to know this domestic economy. As practical subjects affecting the daily welfare of the people they rank in my opinion more important than even the three Rs. Good food is more necessary than reading. I think you must eat food before you begin to read. A clean and healthy home is more necessary than writing, and I consider that practical thrift is more necessary than decimal fractions. Our ancestors without public education practised them. We must all have known some old body who kept her cottage a model of cleanliness, did not get into debt, and kept her husband sober, notwithstanding he might have had a glass of beer. I do not undervalue reading, writing, and spelling, but I think the other things more important. Never did a Government proclaim a policy in education more valuable than the necessity of knowing what domestic economy is; but I regret to say it has been left as a theory only, and no practical steps have been taken to make the words a reality. There are no text-books suitable for elementary schools, and the Department has not cared to stimulate the production of any. The subject is not named in the table of qualifications of pupil teachers in training colleges. Not even an individual has been charged with the direct responsibility of seeing if the subject is in motion. The Central Executive of the Education Department has more than enough to do to direct and control the annual expenditure of two millions of pounds for elementary education. It has no force to spare for special subjects. The inspectorial power has been constituted under old traditions, and the inspectors are chiefly University men. The Universities themselves have not hitherto much cultivated the sciences involved in the knowledge of health, food, or household economy. Such knowledge carries no degrees, it gives no fellowship. Many inspectors are not even qualified by marriage to know anything of domestic economy. The inspectors are but mortals, and each acts according to his temperament. They have no responsibility whatever to urge schools to study these subjects, yet as being virtually the distributors of the grants they have a kind of omnipotence. When the public mind is sufficiently alive to the value of domestic economy and the value of the Parliamentary grants, Parliament itself will move, and then the subject, which has been talked about in Blue Books since 1849, will be effectively administered. In the meantime, let me tell you, as is the custom of the country if it does not find the Government doing its work, some private institutions have taken the matter up, though their abilities are poor when compared with Parliamentary money. The National Training School for Cookery has been established. I am also happy to say that Watford is one of the few places in the whole United Kingdom which has started a practical school for cookery. It is some distance from here, and I could wish that Watford, in the town itself, taught the principles of cookery. There is scarcely a single lady, young or old,—there are such things as old ladies,'—that might not be much benefited by attending to this matter of cookery, and if you think it worth while, you have only to apply to the Rev. Newton Price, who has already done the work at Watford-heath, and will show you how to do it in Watford. There is another subject which I see you do take care of in this institution to some extent, and that is music. I am of opinion that there is no subject that is more calculated to benefit the people of this country than the proper cultivation of music; and I trust the managers of this institution will do their best to establish musical classes if they have not already done so. During my time I have tried the experiment of music. I have had a little to do with the National Training School of Music; but I am not going to talk about that. I have long held the opinion that the churches of this country are not quite as much used for the benefit of the people as they might be; and I once was instigated (Heaven knows how) to see if I could not make use of my parish church at Brompton. Of course I was all allegiance to the vicar, and I said to him "Doctor, I think I could show you how to bring the people to your church." He said, "I wish you would." I said, "I think I could invent a plan," and I commend this to the notice of the clergy who have charge of the churches in Watford and the neighbourhood. I said, "The people are usually very fond of music, and I think if you were to invite them to come to the churches once a week and allow them to take part in the evening service, giving them as much simple music as they can well sing and understand, you will find they will come." All that in theory sounded very well, and my vicar said, "I will lend you the churches for four Tuesdays." So I did as your Committee and other people do, stuck up some placards, and invited people to come. Then I said, "Let all the seats be free, and everybody come and take his place where he likes." Well, my pastor agreed to that condition, and I said to him, "The next condition I would make is that there should be a sermon, but that it should not exceed ten minutes." Then I said, "They shall have five or six hymns or psalms, which they shall sing to good old tunes — the Evening Hymn, the Old Hundredth, the Austrian Hymn, and others." I said, "I have been at Rome and in Germany, and in both—at one in a Lutheran cathedral and in the other at St. Peter's—the effect of ancient musical instruments—trumpets, as mentioned in the psalms, and shawms (represented by a kind of trumpet also)—was very grand; and if you will allow the hymns to be accompanied by these instruments properly administered, I am sure it will produce a great effect. So we had silver trumpets and two trombones. In addition to them we had two kettle drums; and I declare, if they were the last words I had to speak, nothing more solemn I ever heard. The church was crowded, and they sang their hymns. My friend the Doctor was the only one who disturbed the regulations by preaching seventeen minutes instead of ten. [Oh, Dr. Irons! But it was a good sermon: we happened to hear it.] The result of the affair was, that on each occasion the church was fuller than ever. I met a member of Parliament in the church, and he said to me, "I have been shedding tears all the service; I never heard anything more affecting." I established an offertory after the first service, and at the second I got more than 3*l.* in pence (I requested everybody to give 1d. if he could); at the next service I collected 3*l.* 10s., and at the last nearly 5*l.*; so that we paid the expenses. If you wish to take the people away from public-houses, and perhaps their uncomfortable homes, you might do it by a very simple process in your churches if you tried it.

## TILING.

SIR,—I have used all the methods mentioned by Mr. G. Horsley Palmer. I prefer moss to hay and lime, and hair mortar to either.

The whole secret of keeping a tile roof dry lies in having no mortar below the gauge—the exposed portion; the mortar or moss should be put under the *top bed of tile only*, and the bottom left clear.

I begin with a 3-in. gauge at the eaves, and finish with a 5-in. at the ridge.

The tiles may be pointed (or torched) underneath; but lathing and plastering, or indeed any work under the tile when once bedded, is likely to disturb it, and to do more harm than good.

ROBERT PHILLIPS.

## HEALTH AND SEWAGE OF TOWNS.

THIS was a prominent topic in the address delivered at the opening meeting of the Society of Arts by Lord Alfred S. Churchill, as chairman of the council.

The Chairman said, in drawing attention to some of the topics which I may fairly expect will fully occupy the deliberations of the Society during the session, I must be permitted, at the risk of repeating to some extent what has already appeared in the council's report at the close of the session, to refer to our proceedings of late; inasmuch as, doubtless, our action of the past must be continued in the present session. In May last, a conference was held in these rooms on the Health and Sewage of Towns. It was numerously attended, representatives from all parts of the kingdom were present, and the interchange of the experience and opinions which then took place created much interest. The Society's report of the proceedings forms a valuable contribution towards the elucidation of the subject. The sewage question still remains a problem for solution, notwithstanding all that has been done for nearly a quarter of a century. How to deal with our sewage, and how to get rid of the nuisance at the smallest possible cost, and with the greatest advantage to health, is a difficulty which still confronts us. Exaggerated notions at one time prevailed as to the fertilising value of the sewage, and there was a popular belief that, in lieu of the burden on the rate-payer, it would become a source of wealth to each town. Scheme after scheme was propounded on this supposition, but only disappointment followed. Chemical analysis, it is true, showed certain valuable fertilising constituents and fostered delusion, no account being taken of the cost at which they could be secured, even if any process had been discovered by which they could be made available. Experience, however, has led to the entertainment of more sober views, and the public are now beginning to learn that profit must not be looked for. Our health and comfort demand that the nuisance must be got rid of in some way or other, and at any reasonable cost; and if by some method of treatment a return can be obtained to diminish this cost, so much the better. We are no longer permitted to pollute our streams with it, and other means must be adopted for the removal of, and dealing with, our sewage. Experience would seem to show, and our Conference enforced this lesson, that perhaps a profitable, as well as healthful, way of dealing with sewage, is to apply it to the land; but, unfortunately, it is not every locality that can supply, at a reasonable price, land suited for the purpose, either in soil or position. There are, doubtless, various processes for treatment of the sewage, chemically and by precipitation, which result in the production of a good effluent, generally sufficient to meet the requirements of the Rivers Pollution Act, passed last session; but the precipitant, sludge or solid matter, produced, is but of little value, and must not be reckoned upon as giving a return in money covering the outlay for works and cost of carrying out the process. At Leeds, I understand, where, probably, a larger amount of practical experience has been obtained on an extended scale than in any other town, the difficulty has been to get rid of this sludge or solid matter; and it is only within the last few weeks that arrangements have been made with a contractor to purchase it and take it away at 12s. per ton, a sum totally inadequate to defray the cost of treatment. All that can be looked for in any case, wherever the water-carried sewage is applied to land, or treated by any known process, is, that under the most favourable conditions, some small return may be obtained in diminution of the necessary cost of getting rid of the nuisance.

While I am on the subject of sewage, there is another point of very considerable importance to which attention was drawn at the Conference, viz., the construction of house-drains, and their connexion with the sewers. It is of little avail that we spend our money on an admirable system of main sewers, so long as but little care is bestowed on the means for taking advantage of them. Indeed, these very sewers themselves thus become a source of annoyance and disease. Under the Metropolis Management Act, and other Acts of Parliament, the vestries and district boards of works have powers to a great extent over these house-drains, and in reference to all houses built, or re-built on old sites, since the passing of that Act in 1855, the plans for the house-drainage must be previously approved by these authorities. It is obvious that, except in

the outskirts of the metropolis, where extension is going on, but little practical supervision can thus take place in reference to house-drains. Even in these cases the supervision in many instances does not extend beyond approving the plans; the construction of the work takes place without any notice to the vestry or board of works, even had they a staff who could be continually employed in watching each individual case of construction. Plans in these cases are deposited, and are accessible to the ratepayers. In the vast majority, however, of the houses in the metropolis there is no clue whatever to the course of the drains,—no plans are forthcoming. The unfortunate householder who desires to amend the unhealthy condition of his dwelling has no resource but to submit to a thorough search, and this means total upset of all the lower portions of his house, with its concomitant disagreeables and long bill. Take the parish in which our Society of Arts stands; there are, I understand, about 2,320 houses, and the vestry have accumulated, since 1855, plans of the drainage of 320 only, and this from no fault of the vestry, or its active and intelligent officers. In an old and central parish like St. Martin's, it is obvious there is little or no amount of new building going on except on the sites of old buildings. It is only on the occasion of rebuilding, or on complaints made of nuisance, or on a report of the medical officer, or private application on the part of an owner, that any action of the vestry takes place. In the case of rebuilding, a notice is sent from the vestry-office requiring a plan of the proposed drainage to be sent in, and the sanction of the plan by the vestry, guided by their surveyor, is imperative. The plan is retained, and filed at the office for reference. In case of complaint or report by the medical officer, the drains are inspected by the surveyor; on his report an order is made for their being put into proper condition, to the satisfaction of the surveyor; and a plan is then deposited. In this way, since 1855, the 320 plans above referred to have been obtained. As regards the remaining 2,000 houses, the vestry have no information whatever as to house-drainage. The vestry have plans and particulars of all the sewers within the parish, and their surveyor is ready at all times to give every information to parties on this point, in order to facilitate the arrangements of the house-drainage, and its proper junction with the neighbouring sewer. Here, however, the action of the vestry ends. The plan or arrangement of the drains may be perfect, but the execution may be and frequently is faulty, and all the evils of imperfect drainage still remain. There is no guarantee that the work will be properly effected. The work is covered in, and all defects are thus concealed; and when, after a time, these are discovered, it is too late to get any satisfactory remedy or compensation against the builder or his men, the former probably believing in good faith that the work has been properly constructed.

To undertake the actual supervision of the execution of approved works of house-drainage would involve an increase in the surveyor's staff, and a consequent increase of charge on the ratepayers, but the benefit in return would over and over again repay the cost. How far it would be practicable to get plans of the drainage of all the remaining 2,000 houses is a question not easy of solution. That such a deposit of plans should be made imperative by Act of Parliament is demanded in the interest of health and comfort on the part of occupants. Such a measure is greatly needed, and in the end the expense and trouble incurred would be well compensated for by the improved comfort and improved health to the population which would ensue. In these 2,000 houses about whose drainage we have no information, it may fairly be estimated that, in the majority of cases, the drainage is of an antiquated character, and consists of the old-fashioned square brick drain, ill adapted for its purpose. At our conference the other day, Dr. Whitmore, the medical officer for Marylebone, gave some remarkable instances of the imperfection in drainage which had occurred in Marylebone, and especially in Harley-street, and which, under direction of the vestry, had been remedied. There was scarcely a single house in that street that was perfect, as regarded its connexion with the sewer, and notices were served on twenty-eight or thirty houses which were found wholly unconnected with the sewers. It was, however, only the occasion of a new sewer being made which brought these defects to light, and enabled the vestry, through the vigilance of its able officer, to take cognisance of them. While speaking of the old square brick drain, let me point out a defect in our metropolitan drainage which I am informed is still existing in many parts, notwithstanding all that has been done. We have, at a heavy cost, constructed a magnificent and complete system of main sewers. The District Board of Works have supplemented them in their various localities by subsidiary sewers, also of approved construction, to enable advantage to be taken of the main sewers; but there still remain many districts in which the houses can only avail themselves of these works through a net-work of the old square brick drain sewers working into them. It is needless to point out the imperfect character of these latter drains, which, from their shape and material, are necessarily most inefficient. The district in which we now stand is an instance of this. The house-drains of this building empty themselves into a small square brick drain belonging to the parish, at the back of the premises, which, by some means or other, following a somewhat circuitous course, at last comes round to the great main sewer running under the Thames Embankment. If I am rightly informed, such a state of things is by no means uncommon in many parts of the metropolis. I throw this out for consideration. But, to return to the house-drains. I will not enter here into how far the law confers powers on the vestries or district boards, to secure a perfect house-drainage. We know that under Acts of Parliament they are large, but whether sufficiently extensive for their purpose I must leave to the learned to discuss. We do, however, know this, that whether sufficiently large or not, the great bulk of the house-drainage is practically under no effective supervision. At a conference lately held in these rooms, when many of the medical officers of health and parish surveyors were good enough to attend on the invitation of the Sewage Committee, there appeared to be a large confirmation of the existence of these evils, in many districts at all events, notwithstanding that very extensive powers, it was stated, existed; but it was admitted on all hands that the practice of the vestries in availing themselves of these powers varied in every district; that whilst in some districts a great deal was done to remedy the mischief, in others the practice was lax, and the law all but a dead letter. It was the unanimous feeling of those assembled at the Conference that some steps should be taken to ensure the enforcement of the law and secure uniformity of action. I know it will be said that to attempt to deal with existing houses would lead to an interference with the proverbial Englishman's castle which would never be tolerated, and that a system of centralisation would be set up only worthy of Continental despotism. Whilst I am no advocate for centralisation or undue interference with individual action, yet it must be admitted that there are numerous cases constantly arising in which individual action is practically inadequate to procure those comforts and conveniences essential to the well-being of society. Day by day, as civilisation progresses, so does individual action become less and less competent to deal with the complex problems of society. Combined action and restraint on the individual necessarily follow. If we look back but a few years we see how largely this system has now become interwoven with our daily life. Compulsory vaccination and the Building Acts are noticeable instances. In health matters especially, the law and the inspectors are perpetually at work, but nevertheless more is needed. In this matter of drainage we already do much, and in the interest of public health much is demanded. If the Englishman will persist in individual action, and build his "castle" in contravention of the laws of sanitary science, it is time that the law should step in, and that Government should secure, so far as lies in its power, a sound and healthy population. Public health is, after all, public property. It is all very well to say, as some do, that the duty of the parish vestry, or other public authority, should extend to the external wall of the house, and no further, and that then all further responsibility should fall upon the occupant. But how is the occupant to be assured that all the internal arrangements are of a suitable and effective character? The occupant is at the mercy of those who own and those who build houses. Can it be expected that a tenant finding his house defective in these arrangements, is to be at the expense of putting all these defects right? Surely it is not unreasonable to ask that some competent public authority should insist on certain sanitary arrangements being carried out. We have a Building Act,—whether sufficiently stringent or not may be a question,—which, in the interests of public security, compels the constructors of our houses to comply with certain conditions, enforces the building of party-walls, and such like, as a safeguard against the spread of fire. Surely, in the interest of public health there is nothing unreasonable in suggesting that the internal sanitary arrangements of our houses should equally be under competent supervision. An intending occupant would then have some security that, in taking a house, he was not incurring the risk of himself and family being subjected to suffering and disease. On this subject the Council propose to continue its labours, and it is confidently expected that the second conference on Health and Sewage of Towns, intended to be held in the course of the spring, will be as successful as the first.

Whilst speaking on sanitary matters, I must not omit to draw special attention to the enlightened action of the King of the Belgians in relation to this subject, the more especially as it affects one of the objects early treated by the society, viz., the improvement of the dwellings of the wage classes. His Majesty offers, to be awarded at the next International Sanitary Congress, "a gold cup, of the value of 5,000 francs, to that municipal or local authority or to that private association which, by its improvement of the dwellings of the wage classes, shall effect the greatest reduction of their death-rates at the lowest cost."

This is an international prize, which may be said to be new in principle, great in itself, and capable of extended application. It is new in this respect, as proposing a competition, not between individuals, but between collective communities. To the ratepayers and to the shareholders, whose money is being expended, it will be of value, and should be promoted by them; and, indeed, it should be required by them of those who expend their money, that they should avail themselves of the great opportunity of proving their competence.

It will be for the Council to consider in what way they may in England contribute to the attainment of his Majesty's wise and beneficent object, by calling local attention to it, and supplying suggestions of means for its attainment.

## HAS HOUSEHOLD ART DETERIORATED?

The Rev. Mark Pattison thinks it has. In delivering the prizes in the Oxford (city) Schools of Science and Art, he said,—There never was, in England, so much talked and written about art; yet, if I may judge from the upholsterers' shops and the general aspect of my friends' drawing-rooms, all this talk and all this writing have failed to get beyond the outward ear. The purchaser is still content to have, the manufacturer is still intent on making, the same flimsy, awkward, unmeaning utensil, covered with tawdry ornament to hide its unintelligent or scamped construction. Neither the public who buy, nor the manufacturers who make, nor the retail dealers who sell appear to be at all aware of the absence of art impulse, which seems to the educated eye so extraordinary in persons who live by producing art objects. It seems to me,—but I shall be told I am a pessimist,—that things are worse instead of better in the last thirty years. Thirty years ago, if we could not make, we could, at least, import from Smyrna carpets whose graceful patterns and deftly-associated tints left nothing to be desired, and which themselves are education to the eye. Where is the old Turkey carpet now? Carpets are still imported from the Levant, but a mechanical European pattern has been foisted upon the Oriental loom, and the staring mineral dyes of coal-smoked England have supplanted the delicate vegetable tints which the Greek had learnt from the Phœnician more than 3,000 years ago. The muddy waters of the Thames have infected the clear stream of the Orontes. Some twenty years ago an English company infused life, or capital, which is the life of manufacture, into the decaying glass manufactory of Murano, a suburb of Venice. English capital combined with the traditional skill of the Murano glass-blower brought over to this country a quantity of table-glass which threatened at first to displace at our dinner-tables the cut-glass which we had brought to mechanical perfection. But the beautiful artistic glass ware which Venice at first sent to us did not establish itself,—it did not sell. In order to keep the market, the company was compelled to adapt its productions to

the taste of the home purchaser, a taste formed on a mechanical, not on an artistic ideal. The company prospers, the depôt in St. James's-street has an exclusive custom, but what it sells is no more the Venetian glass of the early days of its existence. Mechanism, with its mindlessness and its precision, has ousted art from Murano. The ruby, the amber, the olive, the aqua marina, the opal, are still there, but they are vulgarised representatives of the originals; the bosses and the *ritorto* look out of place on the transformed material, and the whole product is a kind of cross road between the Staffordshire cut and the Venetian blown glass.

It is sometimes thought that there is an antagonism between use and beauty. There is not only no antagonism between them—it is impossible to draw a distinct boundary line between the two spheres of the useful and the beautiful. The word "artist" in English has come in colloquial usage to mean "a painter"; but in its original and proper sense "artist" is simply "workman." We contrast "artist" and "artisan," and for many purposes the contrast points to real differences. But, if we go to analyse the elements of character and intelligence which make up the good artist and the good artisan, we shall find that these are to a great extent identical. The term "workman" is falling out of use. It is a pity that it is so, for it just expresses that which artist and artisan have in common. All art, whether fine or industrial, is a making, a calling into being of something which did not exist. Each single art is a collection of the best rules, ascertained by long experience, for producing something. But, as you well know, no mere observance of rules will make a skilled workman. His hand and eye must, indeed, in youth, have been trained by the rules laid down in his craft. But beyond the rules there lies a manipulation which no rules can touch, where the watchful eye and the deftly dexterous hand act in obedience to an attentive brain. Concentration of thought upon the job in hand is the essential condition of good work from the lowest to the highest. Genius has even been defined to be only "a transcendent faculty of taking trouble." And what is the precondition of painstaking, of this concentration of thought which art requires? It is taking pleasure in what we are doing. What a man likes to be doing, to the doing of that he will give his whole attention. All good art-work in all time has been done by thoughtful and happy men. Imitation kills art. This principle pervades all art, from the highest to the lowest. The Sainte Chapelle at Paris is a beautiful architectural monument of the fourteenth century. A reproduction of the Sainte Chapelle by Gilbert Scott in the nineteenth century would have no art value, because it would be a copy; because the mind and art of the architect were not in act to create, but in act to imitate. When a man takes a pencil or a chisel into his hand, he must think about what he is doing, and feel. The expression of this thought and feeling is what gives value to his work, not the fidelity of his representation. When we find pattern or model repeated, reproduced, copied, this thought and feeling are absent. What is wanted is not that a design should be new, but that it should be thought out, given the purpose, place, use, and other conditions of the object to be made. What is in the man must come out in his work, if his work is to have quality. The character comes out of the fingers' ends of the draughtsman as soon as he begins to draw. The honest desire to do the thing one has to do as well as possible, the delighting in doing it, is the one only source of workmanlike skill.

These things being so, the workshop, if it is to be a school of true art, must not be a mill to turn out endless copies. Where the designer is a distinct person from the handicraftsman, where one man invents the pattern or model, and merely hands it to another man to be exactly copied, there a school of art cannot arise. By the habit of mechanical multiplication invention is killed and the soul degraded. The workman is unfitted, not only for producing, but for enjoying, beauty of work. The article produced by a system of division of labour, in which design is confined to one brain and execution remitted to another, can never have the freshness and originality of native work. It may, however, have a secondary degree of merit. There is such a thing as a pattern, say for chintz or wall-paper, which is good in itself; but the multiplication in thousands of such a pattern, and the spreading it through the country, is not art progress. If better articles are now made in Stafford ware, it is due wholly to one or two enlightened manufacturers. I do not see any evidence that our public is at all nearer than it was thirty years ago to the perception that an old Greek pitcher, used for bringing water from the well, without ornament of any kind, is more beautiful than anything we make now. Great stress is laid by the persons who preach this doctrine on the multiplication of beautiful forms and colours as an education to the public eye. I am compelled entirely to dissent from this doctrine. It seems to me psychologically erroneous. The presence of beauty alone does not educate the eye to see it. Is not Nature, with its thousand forms and colours of unrivalled beauty, always before us? Has it not been there since the world began? If looking upon grace and beauty would educate the eye, men have had it always before them, even in the most debased periods of the arts. Natural appearances and artistic representations are subject to a common law of beauty. All art is one. The man who, without copying, can arrange a cluster of rose-leaves nobly can design anything. A French-woman can do this; an English-woman cannot. Is it because roses do not grow in England?

Time will not allow me to follow out this investigation, interesting as it is. I must be content with saying that, instead of this doctrine of the multiplication of objects of beauty, I am compelled to believe what Mr. Poynter told us the other day at Liverpool, that mechanical production is in its nature opposed to art production. In our Schools of Art throughout the country, we certainly aim, not at the production of better specimens of work, but at the elevation of the workman. We care not that the work should be good, but that the children should be well trained. I am here to distribute prizes according to results. Yet I must say, with all the emphasis in my power, that the only valuable results of a school of drawing are not beautiful specimens of design, but the results on the understanding and the heart of the pupil. An hour of well-directed and well-corrected effort, rubbing out and putting in, issuing in a blurred sheet of paper totally unpresentable, is of far higher merit than a showy and complete pattern, which is either copied or worked in servile compliance with some rule. If in the competition of the markets of the world British goods have acquired an evil notoriety for bad material, scamped construction, clumsy finish, the fault is a moral rather than an intellectual one. It is to be cured by refining the habits and increasing the happiness of the workman, opening to him new thoughts and new recreations. Instead of thinking only of the wages of his work and hating the work by which they are earned, trying how little he can do for the money, only when he begins to find his pleasure in his work and his pride in making it as complete as possible will art revive and flourish in England.

## RICHMOND PARK AND THE PUBLIC.

For some time past considerable dissatisfaction has been manifested in the neighbourhood of Richmond in respect of the management and appropriation of Richmond Park, the principal grievance appearing to be that the public are excluded from a large area which it is contended belongs to them, for the sake of the breeding and preservation of game for sporting purposes. It is stated that large portions of the park have from time to time been enclosed, ostensibly for the purpose of renewing the trees, but in reality for the rearing and sheltering of game, and it is urged that whilst the recreation of the public is thus interfered with, the national exchequer bears the expense of this game preservation, principally for the amusement of the Ranger and those who have direct control over the park. It is added that, in addition to the large space inclosed, and the cost incurred for game preserving, upwards of 100 acres is also inclosed in winter for feeding the deer, notwithstanding that a large sum is annually voted for food for them over the park generally; and a further complaint is, that although the park is more than 3,000 acres in extent, cricket and all other athletic exercises are strictly forbidden. The local press of Richmond and Kingston has for several weeks back had a lengthened correspondence on the subject, and much agitation at present prevails, it being urged that game-preserving in such a public park, not more than eight miles from London, ought to be abolished, and the large area now inclosed thrown open for the recreation of the public. It appears that a committee has been formed, and that arrangements are in progress under which it is expected that a public meeting will shortly be held in relation to the present management of the park.

## SALE OF THE CATHEDRAL HOTEL, ST. PAUL'S CHURCHYARD.

The value of hotel property in the City was shown at the sale of the lease and goodwill of the Cathedral Hotel, St. Paul's Churchyard, which took place at the Auction Mart on Tuesday, when there was a very crowded attendance and a keen competition. The hotel comprises five houses situated in St. Paul's Churchyard and Cheapside respectively, let on lease for varied terms, some of them having twenty years to run, and the annual rental being 1,723*l.*, but by the tenant of the hotel underletting the lower portions of a part of the property as shops, the rental of the hotel is reduced to 843*l.* per annum. The auctioneer, Mr. Lovejoy, in introducing the property, stated that the several leases gave the tenant of the hotel power to make structural alterations in the buildings, but that any new elevations or reconstructions of that character would have to be subject to the approval of the Corporation. There was also a clause in the lease of that portion of the property held from the Corporation,—No. 5, Cheapside,—prohibiting its conversion into a vault or dram-shop for drinking purposes. The first offer made for the property was 5,000*l.*, which was immediately followed by a bid of 12,000*l.*, and by succeeding advances of 1,000*l.*, 500*l.*, and 100*l.*, the property was brought up to 17,200*l.*, at which sum it was sold to Mr. Sweeting, fishmonger, St. Martin's-le-Grand, immediately opposite the hotel. In addition to the purchase-money, the purchaser is to take the furniture, fixtures, and stock at a valuation, which the auctioneer stated was estimated at 2,500*l.*

## CONFERENCE OF VESTRIES ON THE THAMES PREVENTION OF FLOODS BILL.

The vestries connected with the parishes more immediately affected by the Bill promoted by the Metropolitan Board of Works for the prevention of the flooding of the Thames within the Metropolitan area, have resolved to offer a united opposition to the Bill, on the ground that its provisions are inequitable. At a conference held on the subject at the Lambeth Vestry-hall, eight vestries and District Boards of Works were represented, namely, St. George the Martyr, St. Olave, Rotherhithe, Wandsworth, Fulham, Limehouse, St. Saviour's, and Lambeth.

Mr. Fowler, architect, the representative from Lambeth at the Metropolitan Board of Works, presided, and in the course of some prolonged remarks endeavoured to show that the Bill promoted by the Board of Works was unjust, inasmuch as it proposed to throw upon certain parishes the cost of works which were of a purely metropolitan character. He observed that whether the overflowings were due to the Northern Embankment and similar improvements, which had narrowed the channel of the river, or to any other cause, the fact remained the same that at present there was no control over these floodings.

Ultimately a resolution was unanimously passed to the effect that the Conference felt bound to oppose the present Bill, on the ground that by its adoption a great injustice would be inflicted upon many of the metropolitan parishes. The resolution added a request that the Metropolitan Board re-draft their Bill, with the view to the protection of property generally from damage by flood, and that the cost of the works be made a charge upon the metropolitan area.

The delegates at the conference from the several vestries numbered upwards of forty, but they did no good.

## THE PREVENTION OF ECHO.

Sir,—In the *Builder* of June 6th, 1874, there is an article on the use of wires to improve hearing in churches where there is an echo. It would be a favour if you could inform me of the name of any one who has had practical experience of the application of such wires, as it is desired to make the experiment in a church here, and we are at a loss to know how to choose wire, as regards material and size, and how to apply it as regards position, tension, &c.

*Edinburgh.* J. N. A. Macdonald.

*** Since our notice of the experiments referred to, we have not received any satisfactory information on this subject.

## THE NEEDLEMAKERS' COMPANY'S PRIZES.

The Company of Needlemakers having determined to offer prizes by way of encouraging and developing the art of needle-making in the neighbourhood of Redditch, in which locality this manufacture has been established for many years past, the Court of the Company appointed a special committee to arrange a scheme for that purpose, and to confer with some of the leading manufacturers as to the most desirable mode of inducing competition in the respective processes necessary to the development of the art. A Committee of Manufacturers was selected from the manufacturing district, and the various details of the prize scheme were considered by it. The scheme of prizes sought to develop the art of needle-making under three heads, for which prizes were offered. The judges have awarded the first prize to Benjamin Hill, needle-hardener, of Studley, for a pair of foot-shears; and a second prize, consisting of 1*l.*, from local sources, with a certificate of merit, to Richard Bennett, junior foreman, of Redditch, for a "Double Polishing Buff." Section No. 3, prizes for handicraft (tool-making) produced, as might have been expected, the greatest number of competitors, and the keenest competition. The prizes in this section were offered for the best specimens of tool and work for sewing-needles and sewing-machine needles. The art of tool-making has always been considered, in this and kindred trades, one requiring the greatest skill, and it will be readily understood that the delicate needles used in the manufacture of gloves and fine cambric sewing, whether by hand or by sewing-machine, must be made from dies of the greatest nicety and finish; undoubtedly the tool-makers were much stimulated by the prize scheme and exhibition, and, as a consequence, the merits of many of them became better known. In this section the judges awarded the principal prize to Charles Townsend, toolmaker, of Redditch.

For sewing-machine needle tools the judges awarded the first prize to Jonah Warner, of Redditch.

The prize for the best essay was not awarded; a second prize for an essay was given to W. Shrimpton.

## LIVERPOOL MASTER BUILDERS' ASSOCIATION.

The annual dinner of this Association was held on the 15th inst. Mr. Lett presided, supported by the Mayor (Mr. A. B. Walker), Messrs. Sherlock, Boult, Weightman, and Geo. Holme, architects, and a large number of the members and their friends. The chairman, in proposing "The Town and Trade of Liverpool," coupled with it the name of the Mayor. He said it was most gratifying to have among their guests his worship, whose magnificent gift to the town,—the Art Gallery,—could not be too highly prized. "The Liverpool Master Builders' Association," the toast of the evening, was afterwards given. Mr. S. H. Holme responded, and, referring to the relations between masters and men, he said that the Association was ready to settle all disputes that might arise if the men would only be reasonable in their demands. He believed that within the ten years the Association had been in existence the wages of the operatives had gone up 15 or 20 per cent. They did not grudge the prosperity of the working classes, for the prosperity of the working classes meant the prosperity of the country, but he thought the demands that the men had made some time past were unreasonable, and it was highly creditable to the master builders that they had been able to meet them. With regard to the question of arbitration, he thought that if the working classes expected the employers to meet them on equal terms in time of dispute, their word must be depended upon. In 1873 the employers of the painters had a difference with their men, and it was agreed to allow the matter to be settled by an umpire. The award, which was in favour of the men, was agreed to by the employers. In 1875 there was a dispute between the master plasterers and their men, and as the award did not give the latter all they required, they refused to resume work, and the masters were at last obliged to accede to the original demands. He thought there should be a distinct understanding between the parties when questions of this description were referred to an independent person, and that the policy of "Heads, I win, and tails, you lose" should not be tolerated. He was afraid that in the majority of instances good times for the operatives were bad times for the employers, and he did not believe that advances in wages ought to come altogether out of the builders' profits. He had been informed that there were no fewer than three kinds of demands being prepared for the coming year.

## MASTER BUILDERS AND APPRENTICES.

Year after year is the old system of apprenticing lads to the building trades falling into disuse, and in no district is this more carried out than in the metropolis. In the first place, the trade societies of masons, carpenters, joiners, and bricklayers enforce, in many shops, a restriction as to number, and the large firms appear quite indifferent, unless a very heavy premium is paid with a lad; this at once prevents a mechanic indenturing a son with a large employer, and consequently lads are apprenticed to small master-men, and generally in the country.

Some trades, however, object to a man coming into their shops without he can show his indentures; but unless new blood be let in more freely the requirement will in a few years be difficult to meet. In the last revision of the stamp duties the House of Commons and the Chancellor of the Exchequer had the subject brought under their consideration, and it being stated that the stamp duties on apprentice indentures seriously militated against the system of apprenticeship, the stamps were altered. Thus we find from an old stamp-duty list of 1810, any premium under 30*l.* had to pay 15s. stamp duty, and running up to 500*l.* the stamp rose to 20*l.* The present stamp duty is, if no premium be paid, 2s. 6d., and for every 5*l.* and fractional part, 5s.; so that the present scale is higher, as the premium rises, than the old one; but the lower premiums paid for mechanics are easier in stamp duties, hence an advantage to the working-classes.

One of the chief obstacles in procuring apprentices is unquestionably the high tone of freedom pitched by the lads nowadays, and their horror of being bound to a stranger for the ancient term of seven years; and this feeling is likely to be increased by a legal decision recently given on the oft-disputed question, as to whether an apprentice who attains the age of twenty-one is a free man. It has, however, been decided that, where an apprentice's indentures set forth "to serve him from the day of the date hereof for and during the full term of seven years next ensuing," such indentures cannot legally be cancelled, until the full seven years have expired; and that the next friend who entered into the covenant is liable to damages where the apprentice refuses to complete the full term. Here the shoe pinches the father whose son, having arrived at his majority, sets his authority at defiance, for the law casts the father in damages.

How the City Chamberlain acts with refractory apprentices over twenty-one years of age is a Bridewell secret, but it appears that there is a remnant of the old Bridewell yet remaining in Bridge-street, kept up for the special behoof of naughty apprentices.

The only way to obviate this ruling of the Courts of Law is for the indenture to expressly determine the end of the agreement to be when the apprentice arrives at his majority.

## SEWERAGE MATTERS.

*Birmingham.*—On the 17th inst., on the invitation of the Duke of Sutherland, chairman of Scott's Sewage Company, the members of the Sewage and Health Committee of the Birmingham Town Council, inspected the works of the company at Birmingham. The sewage of Birmingham is dealt with in two departments. The liquid sewage, consisting of the drainage of the streets, houses, and water-closets, is conducted to Saltley by means of the sewers, and is treated according to the plan devised by Mr. Hawksley, C.E. The other department is that known as the "night-soil department," and to which is assigned the removal of the contents of middens and ashpits, and the carrying out of the pan system introduced as an improvement on the midden system some time back. General Scott's patent, which has been taken in hand by a limited liability company, is for the purpose of dealing with the pan excreta by converting it into a sulphate of ammonia and a phosphatised manure, both of which are merchantable.

*Broadstairs.*—For some years the local sanitary authority at Broadstairs have had before them the question of providing some proper scheme of drainage for this popular watering-place, but considerations of economy have prevailed over those of health and cleanliness, and till recently nothing has been decided upon. In the present year, however, Dr. Robinson, the medical officer of health for West Kent, strongly urged the adoption of some system of filth disposal; his representations were strongly backed by the Local Government Board, and at last plans have been actually prepared for comprehensive works.

*Newmarket.*—The Newmarket Local Board having applied to the Local Government Board for sanction to borrow 3,500*l.*, for the purpose of carrying out certain plans prepared by Mr. John Francis Clark, architect, for the disposal of the town sewage, at an outfall to be constructed on land on the east side of the Exning-road, an inquiry, directed by the Local Government Board, was opened on September 28th, and was resumed on the 10th inst., when Mr. Samuel Joseph Smith, C.E., one of the inspectors for the Board, attended for the purpose of taking evidence. As the sewage of Newmarket runs into an ancient watercourse, which passes through the town, and afterwards takes its course northward through Fordham and other villages, the passing of the Rivers Pollution Prevention Act, which will come into force in August next, imposes urgent obligations on the local authority, which they are endeavouring to meet by means of the proposed works, adopted in place of more elaborate and comprehensive plans prepared by Mr. Baldwin Latham, who estimated the cost at upwards of 22,000*l.* The scheme of Mr. Clark is opposed by the Rural Sanitary Authority, who were represented at the inquiry by Mr. Rogers Field, C.E.

*Great Crosby.*—Mr. Robert Morgan, Inspector to the Local Government Board, held an inquiry on the 7th inst., at Great Crosby, on the application of the Local Board to borrow 3,000*l.* for the reconstruction of a portion of the present outlet sewer, which is defective and insufficient for the purpose. Mr. T. Mellard Reade, C.E., of Liverpool, the engineer employed by the Board, attended to give evidence. He produced a section of the present sewer, which is of fire-clay pipes, 24 in. diameter, showing where the imperfections occur, and also the flood line and gaugings at several points. The intention is to make a new brick sewer in substitution of the old one for a distance of 810 yards parallel with it for the greater part of the course, and for the remainder laid in the old one. This, it is expected, will relieve the cellars in Victoria-road from the flooding which now takes place during thunder-storms.

*Crewe.*—As to the sewage farm here, the *Birmingham Post* says the announcement has just been made to the ratepayers of Crewe that an additional rate of 5d. in the pound has been imposed by the Local Board, in order to meet the extraordinary deficiency on the sewage farm, raising it at one bound to meet farming expenses alone from 11d. to 1s. 4d. Last year the ratepayers were called on to make good a deficiency of 3,919*l.* on the sewage farms, and this year they will have to pay 4,000*l.* The Chancery proceedings and establishment of the place as a sewage farm as a first expense are said to have cost the town nearly 70,000*l.*

## DAMP AND VENTILATION.

Sir,—As one of a perplexed and hitherto baffled congregation, I come to you, asking you kindly to allow this letter a place in your columns, believing that if there is help for us in science, it will come from you.

Simply, then, our enemy is damp, and it is the more provoking because soil and situation are on our side. Still the enemy has an advantage over us, and we are as yet a conquered people. Many schemes have been suggested for ventilating our church. Among others, pipes through the windows to admit air. In the present state of things the windows do not open, and the ventilators do not act! Most thankful should we be for information of any plan of ventilation that is found to be perfectly successful.

In the case of this church expense is a grave consideration, as no large outlay can be incurred; in fact, only a very small sum can be expended. The question of stoves, too, has been under consideration, and as a result the difficulty of a good draught. Here, again, we should be thankful for any valuable hints. Q. Q.

## THE LAND AND BUILDINGS, EPPING FOREST, AND THE NEW SCHEME.

Some interesting statements have been made before the Commissioners now sitting for the purpose of hearing objections and suggestions respecting the scheme for the preservation and future management of Epping Forest.

Amongst those who have appeared in opposition were the British Land Company, on behalf of whom it was stated that the company were large holders of land within the boundary of the forest and the neighbourhood, and had within the last twenty years bought and laid out for building, and otherwise improved, a large quantity of land in the locality, considerable portions of which were affected by the proposed scheme of the commissioners. It was urged on behalf of the company that in common with all the owners of the land which it was proposed to charge with a rent-charge, they had purchased such lands in total ignorance of the right of intercommonage, and that it would be most inequitable that the owners of inclosed land having, as they thought, extinguished all rights of common, and having given full market value for such land, should now be made to pay a yearly rent-charge.

Mr. Robin Allen entered into a long defence of his rights as a grantee, in opposition to the scheme of the commissioners. He pleaded that so far back as 1855, "being daily engaged in London, in employment involving a good deal of brain work and responsibility, he availed himself of the opening of the railway to purchase three very small contiguous plots of land at Loughton, and by enlargement of a labourer's cottage made a home for himself and family." He afterwards obtained a grant of 7½ acres, and that "the machinery by which he obtained it seemed to him to be well established and unquestioned, consisting of a survey by a professional man, a petition to the Lord of the Manor, a conveyance as copyhold at a customary court, by 'seisin of the rod with consent and in the presence of the homage representing the manorial commoners,' and by payments of admissions, fines, and fees, and annual quit-rents, representing, as he believed, full value." He contended that it was unjust to impose "an agricultural value in favour of a recreator on land over which he had no legal right," and that "irresponsible officials and landscape gardeners with large ideas ought not to be allowed to injure the privacy or cause the demolition of certain well-established homesteads."

Mr. Henry Hill, another grantee, in opposition to the scheme, urged that it was "merely high-flown sentiment to state that the public had a right to roam about the forest."

Mr. Tindal Atkinson, barrister, on behalf of the Epping Forest Fund Committee, was satisfied with the general provisions of the scheme, but suggested that the members for Hackney and the Tower Hamlets for the time being should be members of the committee of conservators of the forest. Under the provisions of three of the clauses of the scheme, there were 760 acres of enclosed lands to be dealt with. The price of enclosed land near London was from 500*l.* to 600*l.* per acre, and he urged that the conservators of the City of London ought not to be left to deal with a question involving such an enormous aggregate expenditure. The Commissioners ought to decide whether they could make the purchase of the land so inclosed compulsory or not. He suggested that for the purpose of dealing with the matter the 760 acres should be divided into two classes, namely, the land that was built upon, and the land that was not built upon; because, in the first instance, Parliament would never sanction the pulling down of the houses which had been erected thereon, for the purpose of making it common land again. The proceedings of the Commission would greatly enhance the value of the land already inclosed, and the scheme, as it stood, would (in case compulsory powers of purchase were exercised) provide for giving the occupiers compensation on that enhanced value of land, and to which land they had not the slightest legal right. The Forest Fund Committee also objected to the provisions in the scheme allowing sites for the building of new churches, chapels, or charitable buildings, and they hoped those provisions would be omitted. In the case of existing institutions they saw no objection to a portion of the forest being granted in the manner proposed for their protection, but should new sites be allowed there would be no end to the number of claims upon the Conservators.

## A LECTURE-HALL FOR HACKNEY.

On the 14th inst. the new lecture-hall which has been built in Gore-road for the district parish of Christ Church, South Hackney, was opened. The building has two frontages, one towards North-street, in which is the entrance, and the other towards Gore-road, facing the west end of the church. The hall is 61 ft. long, 31 ft. wide, 14 ft. 6 in. high to the plate, 30 ft. high to the ridge. The roof is of open timber, with plastering between the principals.

The walls are faced with picked stocks, with dressings of Bath stone. The front towards Gore-road has four two-light transomed windows, with gablets; the entrance-front has three lofty two-light windows, with arches and carved finials of late fifteenth-century Gothic character. Mr. Forrest, of Victoria Park-square, was the builder. The cost of the building has been about 800*l.* The architects were Messrs. Henry Jarvis & Son.

## BIRMINGHAM BUILDERS' ASSOCIATION.

The thirteenth annual meeeting of the above Association was held on the 14th inst. Mr. J. Webb, in the absence of the president, occupying the chair.

The committee's report and balance-sheet, which had been previously distributed among the members, were taken as read, and, being approved, were ordered to be entered upon the minutes.

The Chairman announced that no notices for alterations in the working rules had been received from any branch of the trade.

After the transaction of the ordinary routine business, Mr. W. B. Briggs was unanimously elected president for the ensuing year, and Mr. E. Davis, vice-president. Mr. J. Webb was elected treasurer in the place of the late Mr. J. Hardwick.

The following gentlemen were appointed a committee for the ensuing year:—Messrs. J. Horsley, Parton, T. Surman, Garlick, Bloore, Cresswell, Brooks, Moffat, Lidzey, W. T. Bennett, W. R. Wilson, C. Jones, jun., Jeffery, Barker, Sapcote, and Collett.

The remaining business was of a private nature.

The annual dinner of the members of the Association took place in the evening, when Mr. W. B. Briggs presided, and Mr. Parton and Mr. Moffat occupied the vice-chairs. Amongst those present were representatives of most of the principal local firms, including Messrs. W. & J. Webb, Horsley Brothers, Jeffery & Pritchard, Surman & Son, W. J. Whitterel, Barker & Son, W. Matthews, W. T. Bennett, Jones & Son, W. Brooks, Ravenscroft, Cresswell, &c.

## AUCTIONEERS' CHARGES.

At the Kingston County Court, Mr. Henry Abrahams, an auctioneer, sued Mr. William Buckwell, late owner of the Lamb Brewery, Surbition, for 21*l.* 10s., commission for services rendered in endeavouring to dispose of his business.

From the statement of counsel it appeared that in December, 1874, the defendant called upon the plaintiff and said that he wished to dispose of his business. The plaintiff informed Mr. Buckwell that his terms were 5 per cent. on the first 100*l.* and 2½ per cent. on the balance, including all expenses. Mr. Abrahams visited the property, and valued it at 750*l.*, including goodwill and rolling-stock, but the defendant refused to take less than 800*l.* The plaintiff advertised the property, and received many offers, but could not get more than 700*l.* Early in this year the defendant disposed of the business privately, without informing Mr. Abrahams, and refused to pay him any commission. 5*l.* had, however, been paid into Court by the defendant, and by that counsel submitted that the liability had been admitted.

Mr. Abrahams and Mr. Long, also an auctioneer, gave evidence as to the custom of the trade for auctioneers to be paid their commission, once properties were placed in their hands, whether they disposed of them or not, unless they were taken off their books.

Mr. Leone, an auctioneer, was called to disprove the custom alleged by the plaintiff. If an auctioneer did not sell a business he had no claim beyond out-of-pocket expenses.

The Judge gave a verdict for 14*l.* 10s. commission on the amount for which it appeared the business had been sold.

## DISPUTE AS TO MARBLE POLISHING.

KELLY *v.* RADEJAR.

The plaintiff in this case (heard in the Shoreditch County Court, on the 7th inst., before Mr. J. P. Dasent, judge) is a marble polisher, and he sued the defendant to recover money for work done by him at the Marble Universal Company's Works. The defendant was an overseer at the factory in question, and the summons was an adjourned one. At the first inquiry the defendant failed to appear.

The case for the plaintiff was that he was engaged to work at polishing marble, at the price of 7d. an hour, and he worked for thirty-three hours.

The defendant's reply was that the plaintiff was only taken on trial, and it was agreed that he should be paid for his services the sum only of 4d. per hour. Some cornice-work, 5 ft. 6 in. long, was spoilt by the unsatisfactory manner in which he went about his work, and he was accordingly dismissed. The defendant also produced a book, showing that good work of the class had been and was performed at even less than 4d. an hour.

The plaintiff, an old man, who declared that he had not sufficient time to dry the cornices mentioned, said that he had been employed in the business of marble polishing for fifty years, and that he gave no cause for dissatisfaction.

In answer to the judge, the plaintiff said that he could neither fix the amount he claimed, nor could he tell the date upon which he performed the thirty-three hours' work.

Having no witnesses to call, the judge nonsuited the plaintiff.

## SCOTTISH CATHEDRALS.

Sir,—Your account of the repairs lately effected in the Abbey Church (not cathedral) of Iona induces me to beg you to grant me a few lines' space for the purpose of correcting a misstatement, so often made that it has now almost become one of the rooted fallacies of popular literature. I have seen it asserted, I believe, a hundred times in print, that the cathedral of Glasgow is the only one in Scotland which has survived the destruction of the Reformation. The statement, however, is quite untrue. There were twelve Scottish Episcopal sees in pre-Reformation times,—St. Andrew's, Glasgow, Whithorn, Dumblane, Dunkeld, Brechin, Aberdeen, Lismore or Argyll, Ross, Caithness, Orkney, and Elgin or Moray. The cathedrals of Aberdeen and Dornoch (Caithness),—poor enough specimens, it is true, yet not inferior to those of Wales,—were as little injured by the Reformers as that of Glasgow. The same is true of Kirkwall, which, as a specimen of the Romanesque style, ranks with Romsey and Wimborne, Minster. Brechin, Dunkeld, and Dumblane were only partially overthrown, all three being still used for public worship. Some of the remainder were too small to be very important, yet one of these, Fortrose, which I have not myself seen, is extolled in its highest terms for its beauties by an English ecclesiologist, the late Mr. Neale. The principal losses were St. Andrew's and Elgin. That of the latter is particularly deplorable, as it is believed to have remained comparatively perfect until 1707, the year of the Union, when the towers fell and broke through the roof, a fact which, if correctly reported, may seem to indicate an original defect of construction.

The last writer, I think, who has made the above statement is a contributor to the *Frankfürter Zeitung*, who is now publishing his notes of a tour in Britain. Judging from some of his statements, he must be a remarkable specimen of that *rara avis*, the intelligent foreigner. He likens Glasgow Cathedral to the old synagogue of Prague,—a building smaller than the smallest church (whichever that may be) in London or Glasgow, the curiosity of which consists in its dating, or being said to date, from the eighth century. He might just as well compare Westminster Abbey with Bonchurch or St. Lawrence, in the Isle of Wight. He does not seem sufficiently well acquainted with the monumental edifices of his own country to know that there is one of them which strikingly resembles Glasgow cathedral, in the style of its exterior at least,—I mean that of Magdeburg. The interiors, however, differ widely; tha latter being all First Pointed of the earliest type, whilst Glasgow is one of the best specimens of the Second Pointed and Decorated which can be found within the four seas of Britain. Magdeburg is equally fine in its own style, and is now seen to great advantage, since its restoration by the late King of Prussia. I have often regretted that it should be unknown, or almost unknown, to English antiquaries and architects.

From what I have written, it appears that four of the old Scottish cathedrals remain much as they were, whilst three others are not very far from perfect.

Vitruvius Minor.

## CHALK.

Some cottages of chalk and flint, in panels, were lately destroyed at West Croydon. They appeared about 100 years old. The chalk was built in blocks of about 20 in. by 14 in., and the thickness of the wall. They were laid on their natural bed, and still bore the marks of the adze the faces were dressed with. They were interesting and unique specimens of construction, and looked fit to stand for many years.

R. Phillips.

**The Chief Engineer of Newcastle.**—Mr. Hugh M'Kie (formerly city surveyor of Carlisle) has been selected, out of fifty applicants, for the Chief Engineership of the borough of Newcastle-on-Tyne, at a salary of 1,000*l.* a year. Owing to circumstances, however, the actual appointment has been deferred for three months.

## LEEDS MUNICIPAL OFFICES COMPETITION.

THE committee have awarded the premiums as follows:—1st, "Crayon," Mr. George Corson, Leeds; 2nd, "Hoc Securior," Mr. D. Brade, Lowther-street, Kendal; 3rd, "Spero," Messrs. Hill & Swann, Park-square, Leeds. We are informed that the designs will be open to the inspection of the public for one week from Tuesday morning last, in the Law Library, Town-hall, Leeds.

The following is the report made by Mr. Cockerell on the eight designs selected by the committee from the twenty-four submitted:—

"Having made a preliminary examination of the eight designs, and formed a rough estimate of their relative merits and of the apparent capability of the authors, I submitted them to a further very minute examination, adopting a system of marks which by ascribing to the several parts of the designs (whether of a practical or an artistic nature) a separate value, established a more accurate comparison of the several designs in their parts, and in their whole. This second examination, which considerably modified my first impression, in addition to furnishing a more reliable standard of the merits of designs as set forth in the drawings merely, was besides of a nature to give a clearer appreciation of the capability of the authors for carrying out such a work than would be furnished by the designs considering their positive aspect only.

I should, however, observe that, while I attach great weight to this last consideration, I have not taken it into account in the assignment of marks. Having made a third general examination and a revision of the scores, I added the following further considerations as motives in the recommendations which I should have to make:—(1.) That the first place as likely to lead to the carrying out of the work should be assigned to the competitors who, while receiving the highest number of marks, should also give evidence of the greatest capability and general knowledge. (2.) That for the secondary prize some additional consideration might be given to artistic merit and ingenious arrangement, apart from the question of the strict adaptability of the designs for execution. Having thus, as is due to the confidential commission with which you have honoured me, laid before you the method and notices of my selection, I have to state my conclusions. I consider the order of merit to be as follows:—(1) 'Crayon,' (2) 'Hoc Securior,' (3) 'Spero,' (4) 'Plato,' (5) 'L. P. O.,' (6) 'NotaBene,' (7) 'Leodiensis,' (8) 'Q. E. D.' The three first compare in number of marks as 75, 61, 57 respectively. I have further to express my opinion that the designs of 'Crayon' give evidence of a degree of experience as well as of talent which may well justify you in entrusting him with the commission. 'Hoc Securior' exhibits considerable merit in artistic design, especially in the elevations. The design of 'Spero' is carefully considered, but is wanting in sufficient appreciation of scale in the elevations.

With regard to cost, I am of opinion that the sum assigned as a limit by the instructions, is insufficient for any building of an adequate character, and of the capacity required.

The design of 'Spero' approaches most nearly of the three to the limits, but this result is attained by somewhat contracting the areas of some of the spaces, as well as the height of the rooms and the elevation. Except in this respect, there need be no great difference between the cost of this design and of that of 'Crayon.' I shall be happy to furnish any further explanations of the above remarks, and to wait upon your committee should you require it.

Finally, I would venture to express a feeling, which I trust may not be regarded as an encroachment upon my office, namely, some regret that the instructions precluded my examining the whole of the designs sent in, as the considerable distance between the design which I have placed first and the others leads to surmise that a closer approximation of merit might possibly have been found. The more as the very precise and well-considered instructions left comparatively little scope for variety in the plans, and therefore necessarily made so much to depend upon the elevation."

## COMPETITIONS.

*Margate Drainage.*—At a meeting of the Town Council, on Tuesday last, the first premium, 200*l.*, was awarded to Mr. Lewis Angell, and the second premium, 100*l.*, to Messrs. Gotto & Beesley. The plans were sent in nearly three years ago, and the award has been made on the recommendation of Sir Joseph Bazalgette, to whom the schemes were referred.

*Wimbledon Local Board Offices.*—In response to an advertisement issued by the Wimbledon Local Board for designs for new offices (not to exceed 2,750*l.* in cost), twenty-two sets of drawings have been sent in. The committee appointed to make the selection reported in favour of the final selection being made from four, bearing the respective mottoes of "Ars longa, Vita brevis," "Delta," "Utility," and "Sanitas." Mr. Townsend (one of the committee) said (at a meeting of the Board) that the first-named was in the "Early English style of the sixteenth century" (!) with an overpowering quantity of glass; that of "Delta" was bold and attractive in design; while that of "Utility," he was persuaded, could never be carried out for the money the Board had resolved to pay. The plan marked "Sanitas" he considered decidedly the best for their purpose, and it was the only one that gave plate-glass windows, Minton's tiles for paving, and a Portland-stone staircase, and the estimated cost was within their limit. Mr. Ashby expressed the hope that the Board would not be guided in their selection by the pretty appearance of the drawing, and Mr. Paxton having spoken briefly in favour of "Utility," the chairman proposed, and Mr. Wedlake seconded, that the plans marked "Sanitas" be accepted, which was agreed to without a single dissentient, Messrs. Ashby, Haynes-Jones, Paxton, and Thomas not voting. The letter accompanying the plan was then opened, and the author announced as Mr. Thomas Goodchild, of Duke-street, Adelphi.

## ALDGATE EXTENSION OF THE METROPOLITAN RAILWAY.

THREE-FOURTHS of this extension are underground; but the breaks are so frequent as to promise ventilation. The line passes from what is called the Bishopsgate-street station under Liverpool-street and Bishopsgate-street; running thence parallel with Devonshire-street it goes through and under Devonshire-square, passing so as to touch the vast tea-warehouses of the St. Katharine Dock Company in Cutler-street, under Harrow-alley, Meeting House-yard, and Gravel-lane, and thence into High-street, Aldgate. The gradients are very satisfactory, being in fact almost nominal. The curve formed by the line is extremely gentle, having a radius of only 2,000 ft. The greatest depth of the rails below the surface is 28 ft., the level 17 ft., the average thickness of earth above the arches being 6 ft. As would naturally be expected in such a case, the excavations disclosed Roman and other remains of considerable interest. Among the former there were found fragments of urns, specimens of pottery, and bronze coins. The most remarkable discovery was that of a thick stratum of bullocks' horns, commencing about 20 ft. below the surface, and extending to an unascertained distance beneath. Although the deposit was doubtless made many centuries ago, the horns had suffered so little by decay that they found a ready sale in the market. The extension will tap the general passenger traffic of the whole of the eastern part of the City and the East end of London,—the Docks, Fenchurch-street, Mark-lane, Mincing-lane, Whitechapel-road, and Commercial-road; and, on stepping out of the Aldgate Station, one cannot fail to be struck with the vast stream of moving population to whose wants and convenience it will minister. The engineering superintendence of the extension works was entrusted to Mr. Francis Brady, engineer of the South-Eastern Railway; and, considering that a considerable portion of the buildings on the line of route had to be underpinned, and that the tunnel had to be made of extra thickness in consequence of the great weight of the structures above, the virtual completion of the works between the beginning of March and about the middle of November may be regarded as creditable alike to the engineer and the contractors.

## ROYAL EXCHANGE EXCAVATIONS.

SIR,—Can any of your readers favour me with the address of Mr. Russell, who was some time clerk of the works to Sir W. Tite during the building of the Royal Exchange, and who made careful drawings of the antiquities, &c., discovered there? W. H. OVERALL.

*Library, Guildhall.*

## MASTERS AND MEN.

*Staffordshire Potteries.*—Fresh complications have arisen with regard to the wages question in the Staffordshire Potteries, which question is to be referred to arbitration, the employers having given notice of a reduction of 10 per cent. in wages. The turners and handlers of Burslem and Tunstall have resolved to hold aloof from the arbitration, and not to be governed by the decision of the Arbitration Board. Only the Hanley section of these branches of the potting industry will consequently be represented at the Board. The cratemakers have met and resolved to resist a proposed reduction of wages, notice of which has been given at Burslem only at present. The men say they have suffered a reduction of 20 to 25 per cent. in their wages in the last two years.

*Leeds.*—The Leeds Master Builders' Association has received six months' notice of a demand for an advance of wages from the operative masons. The masons ask that the wages be 36*s.* per week in summer, 33*s.* per week for the first month, 30*s.* per week for the second, and 33*s.* per week for the third month in the winter quarter. The bricklayers, in a similar notice, state that they are satisfied with 1*l.* 15*s.* 5*d.* for fifty hours per week, but they demand walking-time to work at a certain distance; that no employer shall have over two apprentices at one time; that masters shall not sub-let; and that six months' notice of departure from these arrangements be given on either side.

*Huddersfield.*—The masons of Huddersfield have sent in a demand to the Masters' Association for an increase of wages to the extent of 4*s.* per week.

## WHO WANTS A CHURCH?

SIR,—As some friends of mine desire to buil'd a handsome church for a clergyman of talent, I should feel obliged to any of your readers who would favour me with particulars of a district in or near London where a good new church is needed. Possibly some architect or builder who has recently laid out, or is about to lay out, a new district can furnish the required information.

T. K.

*** The writer has sent us his name and address. The offer is so liberal, that one is led to ask whether it is made in earnest?

## THE BIRMINGHAM BOROUGH SURVEYOR.

THE town council of the borough of Birmingham has just raised the salary of the borough surveyor,—Mr. William Spooner Till, C.E.,—to 1,000*l.* per annum. Mr. Till may be said to have been brought up in the corporation service, as he was a pupil of the late Mr. Piggott Smith, borough surveyor, and at whose death Mr. Till, at a very moderate salary, became his successor. Gradually, but without any interference on the part of Mr. Till or his friends, the town council, upon reports of its Works Committee, who had most experience of the ability and untiring industry of Mr. Till, has, from time to time, recommended an increase of salary, until now it stands at 1,000*l.*, which has been well earned and is richly deserved.

## PAVING APPORTIONMENTS.

AT the Hammersmith Police-court, on the 18th inst., Mr. Jones, clerk of the Fulham Board of Works, attended in support of a number of summonses for paving expenses under the compulsory powers of the Metropolis Local Management Act.

In one case the defendant complained of being charged more on account of a long frontage.

Mr. Bridge (the presiding magistrate) said he was of opinion that apportionments should be made according to the value of the property, and not by so much per foot frontage.

Mr. Paget (the other magistrate of the court), who happened to be on the bench, said he quite concurred in that opinion. He had not had any conference with Mr. Bridge on the subject, but he had looked upon it in precisely the same light.

Mr. Bridge said it would be worth the while of the Board to consider the question.

Mr. Jones asked the magistrate if he considered the apportionment was bad.

Mr. Bridge said he did not. He made orders for the payment, with costs.

## SEWAGE IRRIGATION.

THE unfortunate Local Board of Crewe state that the loss upon their sewage operations last year has been, in round numbers, not less than 4,000*l.*, which is a very serious state of things for a young town, constituted mostly of working men. At Ashby-de-la-Zouch, we are informed, there has been an income from the sewage farms amounting last year to 285*l.* 8*s.* 11*d.* Twenty-eight acres of ground, rented at 7*l.* per annum per acre, have, under sewage culture, in market garden produce, yielded an income equal in gross to 711*l.* 14*s.* 1*d.*, or about 35*l.* per acre gross. At Wrexham, Colonel Jones, V.C., makes sewage farming pay. At Aldershott, Mr. Blackburn has sold upon his sewage-farm this year thirty-five acres of potatoes for 700*l.*, the parties to dig, clean, and remove them at their own cost; viz., these potatoes have sold at a rate of 20*l.* per acre, the crop having cost nothing specially for manure. At Worthing, 1,000 tons of mangolds were grown by sewage, selling up as high as 1*l.*

per ton for a portion of the crops. So, that with good land, good sewage, and good farming, there will be some good obtained. Extravagance in law and in works must, however, be avoided. When the long-expected sewage report is out, we hope to learn something about the question.

## INTERVIEWING A "JERRY" BUILDER.

BY AN AMATEUR GOVERNMENT INSPECTOR.

*Scene—On the "Shoots."*

"TELL me, brickl'er, is this mortar?
Are these cinders?—is this sand?
Who's the 'riddler'? who's the 'sorter'?
Who's the 'boss' or master hand?"
But the brickl'er kept on grinning,
Raised his trowel and struck a brick;
One half went away fast spinning,
T'other he in mud did stick.

"Tell me, hodman, is this plaster?
Is this 'ballast'?—is this 'breeze'?
Is this scavenge?" "Ask my master,"
Said the hodman, "if you please."
Turning to the master-jerry,
Who was list'ning in my rear,
He replied to my first query
(With a curse), "What brings you here?',

"Business, sir, has brought me hither,
From Whitehall I have come down.
When I've done I'm going thither;
But enough—I serve the Crown."
At these words the "jerry" stagger'd,
Closed his mouth, and bit his tongue,
Wiped his brow, and felt quite haggard,
Like one going to be hung.

Thus I "sold" the rampant "jerry";
Then with pencil pointed neat,
Took some notes to prove what very
Rotten work my eyes did meet.
All the brickl'ers stared and wonder'd,
All the hodmen watched me off,
And the "boss" that erewhile thunder'd,
Gave a dismal churchyard cough.

## Books Received.

*Tramways: their Construction and Working.* By J. EMERSON DOWSON, and ALFRED DOWSON, AA.I.C.E. London and New York: E. & F. N. Spon. 1875.

THE rails and sleepers of a tramway, and their supports, have to be considered very differently from those of an ordinary railway. Originally, in the permanent-way of railways, the rails were laid on stone blocks,—at least in cuttings and on solid ground,—but the permanent-way thus formed was too rigid. Heavy weights running at high speed require some elasticity in the permanent-way. In an ordinary railway, the sleepers are laid in loose ballast, which is well drained, easily accessible, and the sleepers can at any time be packed up to their proper level; but tramways are usually laid in public roads, the paving of which is rigid, and therefore the rails and their supports should be so too. As it is necessary to cover up the sleepers with the paving or other materials of the roadway, they cannot be readily packed up, as in a railway, and it is, therefore, additionally necessary to make them so that they may not require this attention, the benefit of elasticity being unattainable.

The form of tram-rails is somewhat difficult. They must not project above the roadway, in order that they may not obstruct the wheels of ordinary vehicles, and the surface of the rails being thus level with the roadway the drivers of carts and wagons endeavour to let them run on the tram-rails, because the traction is easier for the horses; but the wheels cannot be kept fairly on the rails, and run sometimes on them and sometimes on the adjoining paving, wearing it away unequally, and when the carts and wagons are heavily laden and without springs the jolting causes the tramway to be much shaken and loosened, and the paving at the sides to be worn away. It is the object of the authors of this well-written treatise to show how the defects of tramways may be lessened, and the excessive cost of repairs reduced; and this they do under the several heads of *Construction* and *Equipment*, *Working Expenses* and *Maintenance*, *Mechanical Motive Power*, and the *Working of Traffic*.

It appears under this latter head that, "when on a level, or nearly so, it is found in practice that a pair of horses can draw about double the load on a tramway that they can on an ordinary road; but on inclines, although the smooth rails make the traction easier, the force of gravity tending to draw the car backwards is not counteracted in any appreciable degree by friction, and if heavy cars are used the strain on the horses is seriously increased on inclines steeper than 1 in 50 or 45. On this account, as well as for economy in working, steep gradients should be avoided, or, if used, they should be as short as possible."

In a tramway, unlike a railway, one of the greatest difficulties is to keep the rails fastened down. When the rails are laid on continuous timber bearers, the fastenings work loose, and when iron supports are used at intervals a jolt or shock is given to the car as it rides over them. To meet these objections the authors have designed an iron permanent way, with continuous cast-iron bearers, and they say it is considerably cheaper than the system with continuous timber bearers.

In an appendix are given the returns of fourteen horse-lines in the State of New York, from which it appears that as much as 70 or 80 per cent. of the gross receipts is absorbed by the expenditure, which is chiefly owing to the great cost of horse-renewals and horse-keep. The total expenses of ordinary steam railways do not usually exceed from 45 to 50 per cent. of the gross receipts.

The authors have given a good deal of practical information on the subject of tramways within a small compass, in every part of the book going straight to the point in question.

*The Extravagant Expenditure of the London School Board: showing how a Quarter of a Million of Money has been Thrown Away.* London: Effingham Wilson.

THE author endeavours to make out his case thus. The earlier Board schools were erected from the designs of architects holding no permanent official position in connexion with the Board; all the subsequent ones were designed by the permanent architect of the Board. The author gives figures to show that those designed by "outside architects" provide accommodation for 26,358 children, at a cost, exclusive of site, of 209,245*l.*, or 7*l.* 18s. 9d. per child, and that the schools erected from the designs of the Board architect have, up to the present time, provided for 98,182 children, at a cost of 1,010,320*l.*, or 10*l.* 5s. 10d. per child. This simply means in plain English, he says, that if the School Board had even only continued to erect schools upon the same principle as that upon which they began, they would up to the present time have saved to the ratepayers an expenditure of nearly a quarter of a million of money.

The writer adds, in arriving at these figures, "the cost of each school designed by what I may call the 'outside architects,' includes the architects' commission and other expenses of superintendence, whilst the remaining Board schools, having been designed by an officer of the Board, are not charged with any commission."

Something depends on the accuracy of his figures, and something more on the answer that would be given to the question,—Is the same amount of accommodation afforded to scholars and teachers in the earlier as in the later schools? On economic grounds the inquiry is worth settling. From an artistic point of view there needs no discussion at all.

## VARIORUM.

"THE Rose and the Lily, and how they became the Emblems of England and France," is the title of a Fairy Tale, by Mrs. Octavian Blewitt, just now published by Chatto & Windus. It is a charming little story, charmingly told; parts of it with a vigour and brightness which lead us to expect it will not be long before we find Mrs. Blewitt in another path. "The Rose and the Lily" has an additional attraction in the shape of a frontispiece "designed and etched by George Cruikshank, age 83, 1875." It is both powerful and graceful, and etched with so firm a hand, that many will ponder over "age 83." Mrs. Blewitt's story, in its cover of white and gold, will make a charming little gift-book for Christmas.——A third edition has been published of "Mushrooms and Toadstools," by Worthington G. Smith (Hardwicke & Bogue). The object in view is to teach the reader to distinguish easily the difference between edible and poisonous fungi. Mr. W. G. Smith, who is *facile princeps* in fungi, illustrates his remarks with reduced copies of two valuable plates, published by him some time ago, one showing twenty-nine edible and the other thirty-one poisonous species. Our author evidently says, with Friar Lawrence:—

"For nought so vile that on the earth doth live,
But to the earth some special good doth give."

——"An Architect's Letter upon Sewer Gas and House Drainage," by Henry Masters, Architect (Spon) re-urges the necessity for cutting off the house from the sewer, and describes a double trap used by the author.——Fourteen Stories by Mr. Sala, Mr. Dutton Cook, Miss Braddon, and others, with eight page-illustrations, which go to make up the *Belgravia Annual* for Christmas, cannot be dear at a shilling.——Mr. Walford, in the last published part of "Old and New London," writes thus as to Knightsbridge:—"In the early Saxon days, when 'Chelsey,' and 'Kensing town,' and 'Charing' were country villages, there lay between all three a sort of 'No Man's Land,' which in process of time came to be called 'Knightsbridge,' although it never assumed, or even claimed, parochial honours, nor indeed could be said to have had a recognised existence. It was a district of uncertain extent and limits; but it is nevertheless, our purpose to try and 'beat the bounds' on behalf of its former inhabitants. The name of Knightsbridge, then, must be taken as indicating, not a parish, nor yet a manor, but only a certain locality adjoining a bridge, which formerly stood on the road between London and far distant Kensington. There is much difficulty as to the derivation of the name, for in the time of Edward the Confessor, if old records are correctly deciphered, it was called 'Kynges-burig'; while some hundred years or so later we find it spoken of as 'Knightsbrigg,' in a charter of Herbert, Abbot of Westminster. A local legend, recorded by Mr. Davis, in his 'History of Knightsbridge,' says that:—'In ancient time certain knights had occasion to go from London to wage war for some holy purpose. Light in heart, if heavy in arms, they passed through this district on their way to receive the blessing awarded to the faithful by the Bishop of London at Fulham. For some cause or other, however, a quarrel ensued between two of the band, and a combat was determined upon to decide the dispute. They fought on the bridge which spanned the stream of the Westbourne, whilst from its banks the struggle was watched by their partisans. Both fell, if the legend may be trusted; and the place was ever after called Knightsbridge, in remembrance of their fatal feud.'"—— The *American Architect* says:—"Among the interesting things that were shown to the architects in Philadelphia, during their Convention, was the patented process of Messrs. Struthers & Sons, for sawing granite. Hitherto it has been found impracticable to cut granite with a saw, since the ordinary sand process would cut only 1½ in. or 2 in. per day. The inventor of the Messrs. Struthers's process hit upon the idea of using chilled iron, finely divided, instead of sand. A jet of steam is directed upon a fine stream of melted iron, and blows it into spray, just as in the common 'atomiser' a jet of air pulverises, so to speak, the stream of liquid upon which it is turned. The iron, divided into fine globules of (say) 1-40th in. or 1-50th in. in diameter, falls into cold water, and is chilled into excessive hardness. It is used under a saw of soft iron, and with a stream of water, as sand is used in sawing marble. Most persons would have supposed that the scratching of angular grains of sand would be more efficient than the rolling friction of globules of iron; but it would seem that the sand is speedily crushed into dust, while the tough iron, simply wearing down into smaller and smaller globules, crushes its way through the felspathic and other crystals of the granite (which with us is usually sienite, by the way, and not granite). The rolling of the globules is curiously shown by fine channellings, or flutings, which score the under-edge of the saw from end to end. By this device granite can be sawn at the rate of 3 in. or 4 in. per hour, and at small expense, the waste of the iron being about 3 lb. for every square foot of kerf, or two square feet of sawn surface."

**A Bishop's Throne for St. Finbarre's Cathedral, Cork.**—A movement is on foot to erect a bishop's throne in the new cathedral of St. Finbarre, Cork, as a testimonial to the present bishop, Dr. Gregg. The estimated cost is 500*l.*, and the work will be carried out from the designs of Mr. W. Burges, the architect of the building.

## Miscellanea.

**Barrow Opening at Whitby.**—The Rev. Canon Greenwell, with the Rev. C. J. Atkinson, vicar of Danby, has just been conducting the examination of a series of barrows on Sir Charles Strickland's moors, near Whitby, and now gives the result of his investigations. A large barrow near the Flask Inn was found to have been previously disturbed at the centre, but a secondary interment,—a burnt body,—was found, accompanied by flakes of calcined fluid. Beneath a large, irregularly-shaped flat stone, near the central disturbance, was found a small grave, 2 ft. square and 16 in. deep, over and in which the fire had evidently been made that had burnt the body within it. Additional interest attached to this barrow from its peculiar formation; the appearance indicating a conically-shaped "houe" of about 40 ft. in diameter, and 4 ft. to 5 ft. high. Subsequent enlargement of the area had taken place at the secondary interment, and a ring of stones 2 ft. in height had had soil heaped upon them to form a circular platform, with a gradual slope from centre to periphery. Near the above, a smaller barrow was opened, and a grave was found sunk about 2 ft. below the natural surface, and about 4 ft. square. This was filled up with tempered clay, below which was a very thick layer of charcoal; and scattered over this the bones of a burnt body were found, which had possibly been burnt in position. A larger barrow (60 ft. in diameter) on the farm of Mr. John Stanghow, Lythe, was opened, and a cist (which seemed to have been disturbed) was met with.

**The Portico of St. Martin's-in-the-Fields.**—At a meeting of the St. Martin's Vestry on the 15th inst., the chairman (the Rev. W. G. Humphrey, vicar) stated that he had received a copy of a report purporting to come from the engineer and architect of the Metropolitan Board of Works upon certain improvements that it was proposed to make by forming a new street from Tottenham-court-road to Charing-cross. There was but one point in the proposal to which objection might be urged, and that was the plan of the street included the taking away of the steps from the portico of the parish church, and to place the columns upon a wall similar to that at the National Gallery. He considered that to take away those steps would be simply to mutilate and spoil one of the monuments of the metropolis. If altered in the way proposed, he held that it would become an architectural monstrosity and absurdity. He did not believe that the alteration was necessary for carrying out the improvement. As the vaults extended beyond the church, the steps were parts of the consecrated portion. Mr. Churchwarden Scott agreed with the remarks made by the vicar, and considered the removal of the steps would be a great mutilation to the church. It was then resolved that, having heard the statement of the vicar, the Metropolitan Board of Works be informed that this vestry deprecates any interference with the parish church. Mr. Dalton said he had opposed at the Board of Works any interference with the church, and had said it would simply be vandalism to touch the portico.

**Burning Public Lamps by Meter.**—The Gas and Water Committee of the Vestry of Paddington report that the average meter system has now been in operation for a period of two years, ending the 30th of September last, and that the actual saving effected thereby, after payment of inspector's salary, and maintenance of meters, governors, &c., has been 678*l.* 12*s.* 7*d.* or at the rate of 7*s.* 10*d.* per lamp per annum, being 7*d.* more per lamp than last year. This amount, when added to the sum gained by closing the lamp-rental account, and the saving to be effected by the readjustment of governors, &c., will relieve the lighting rate to the extent of 1,650*l.* per annum. There are 1,730 lamps in the parish alluded to.

**Plumstead Common.**—The Metropolitan Board of Works has somewhat tardily decided to take the Plumstead-common question in hand. At its last meeting it was resolved,—"That it be referred to the Works and General Purposes Committee to consider and report what steps, if any, should be taken by this Board to secure Plumstead-common for the public as a recreation ground, with power to confer with her Majesty's Government thereon."

**Scavenging in Dublin.**—The streets of Dublin must be even worse than those of London to justify the *badinage* of Mr. C. J. O'Donel, one of the magistrates at the Dublin Police-court, who on the 9th inst. had to hear a case of assault in which one of the plaintiffs said her husband "was a scavenger." The following dialogue is reported to have ensued:—His Worship.—Why, then, you are a widow? Complainant.—No, your worship. His Worship.—Sure I thought you said your husband was a scavenger? Complainant.—Yes, your worship, and he is a scavenger. His Worship (surprised).—A scavenger! and is he alive? Complainant.—Yes. His Worship.—And is he working? Complainant.—Yes sir; every day. His Worship.—Is it in Dublin? Complainant.—Yes. Mr. O'Donel (evidently astonished).—Who ever saw such a thing in Dublin, these years, a living scavenger! Is he a real living scavenger? Complainant.—Yes, sir. His Worship.—The idea of there being actually a living scavenger in Dublin!

**Brompton Consumptive Hospital.**—At the last quarterly Court of the Governors the report of the Committee of Management stated that ever since the previous Court of Governors the western half of the hospital had been in the hands of the engineers and builders, who had been carrying out extensive improvements in the warming and ventilation of that part of the building. With the view of improving the sanitary arrangements, additions to both wings were also in progress. All these works had necessitated the closing of more than half the wards; hence the list of applicants had become much more crowded than usual, and the period of waiting was unavoidably lengthened, which the committee much regretted. The inconvenience arising from the unlooked-for delay in the completion of the works had been great, and their cost would be very considerable; but the committee believed that the well-being of the inmates would be materially promoted by the improvements.

**Health Lectures for the People.**—The first of a series of "Health Lectures for the People," organised by the Manchester and Salford Sanitary Association, was given on the 15th inst., by Dr. Ransome, Professor of Hygiene at Owens College, on the subject of "Foul Air and Lung Disease." Dr. Ransome said that three-quarters of a million of people died during the last ten years from diseases of the lungs not consumption. He discussed at length the evils arising from smoke, various trades and manufactures, putrefaction, and other causes. The Artisans' Dwellings Bill, which was intended to aid local governments in opening up crowded portions of towns, had been adopted with success in many large towns; but as yet Manchester had not adopted it, though the need that something should be done was very great, for there were parts of the city, especially in Ancoats, where it was a mockery to call the houses homes.

**Paving and Road-making at Islington.** At a meeting of the Islington Vestry on the 17th inst., it was resolved:—

"That, in all cases of roads and footpaths in which the compulsory powers of the Metropolis Management Acts have been, or shall hereafter be, put in force (the moneys for which have been received), or which the Highways or Sewers Committees have directed, or shall direct, to be made or flagged, tenders be invited and contracts entered into by the committee having charge of the works on behalf of the vestry; that the surveyor inspect the works, and see that they are properly executed, and that the materials are such as are required by the existing regulations, or by any regulations hereafter to be made."

At the same time, the vestry decided to take steps for borrowing 40,000*l.*, the estimated cost of cubing the macadamised margins alongside the tramways in Upper-street and Holloway-road (to and including the intersection of the Seven Sisters-road), and in the Essex-road, up to and including the intersection of the Ball's Pond-road.

**Fall of a Building in Sheffield.**—On Wednesday night last week an accident occurred in a row of new buildings, called Prospect-terrace, in Grimesthorpe-road, Sheffield. Mr. Curtis, contractor, and four of his workmen, were engaged in putting the rafters on a house at the end of the terrace, when the gable end gave way, the whole building, with an adjoining workshop, falling with a great crash. When a clearance could be effected it was found that all the five persons were badly hurt. Two were taken to an infirmary, where they now remain in a dangerous condition. Mr. Curtis and two of his workmen were taken home seriously injured.

**Polluted Well-water at Tottenham.**—At the Edmonton Petty Sessions, on the 20th inst. Mr. Henry Baynard was summoned at the instance of the Local Board of Health, to show cause why an order should not be made as to a certain well, situate at the rear of Seven Sisters-cottage, Hanover-road, Tottenham, the water of which was used, or likely to be used, for drinking or domestic purposes, and was so polluted as to be injurious to health. Dr. Watson, the medical officer of health for the district, had reported that the water was very bad, and unfit for drinking purposes, and the defendant had made an offer to close the well, so far as the water was used for drinking purposes. An order was then made to close the well, so far as the water was used for drinking purposes. Another owner and occupier was summoned in a similar case, and in this instance an order was made for closing the well in six months.

**British Archæological Association.**—At the first meeting of the session, held last week, in the course of the proceedings an elaborate paper by Mr. Roach Smith was read by Mr. Isaac, detailing his survey of the Roman stone street from London to Chichester. The perambulation was commenced at Ewell, and continued to its termination. Mr. Loftus Brock, F.S.A., detailed the discovery of a part of the Roman wall of London in Camomile-street, and also that of several sculptures of much interest, found built up as old material within it, on its demolition. The discovery of further sculptures, and the head of a statue of large proportion, and probably of the period of the Antonines, was also announced, and Mr. Haviland exhibited a rubbing from one of the stones.

**The Parliament House of Owen Glendower at Dolgelly.**—A correspondent writes to the *Athenæum*:—"I do not remember to have seen in any London newspaper notice of the threatened destruction of a building which must nevertheless, I suppose, be of interest, not only to all Welshmen, as a monument of the final struggle of their country for independence, but to antiquaries and even, in a less degree, to every reader of Shakspeare,—the Parliament House of Owen Glendower at Dolgelly." He hopes that it may yet not be too late to call attention to the subject, which was referred to in the *Builder* some months ago.

**"Back-to-Back" Houses in Altrincham.** The Altrincham Rural Sanitary Authority has determined to prevent the erection of "back-to-back" houses in future, and, more than this, to insist on the demolition or alteration of many of the existing houses of that kind in its district. The unhealthiness of such buildings has long been demonstrated, yet one of the members of the Altrincham Authority said he "thought it was a great mistake to do away with those 'back-to-back' houses, unless they would compensate those people for the loss of their rents." He confessed, however, that he was the owner of "back-to-back" property in Salford.

**Association of Employers of Labour in the Building Trade.**—The Association, which numbers among its members a large number of gentlemen interested in the building trade of Croydon and district, held its first annual dinner at the Greyhound Hotel on the 14th inst. In many of the after-dinner speeches allusion was made to the strong desire felt by employers that a good understanding should exist between their workmen and themselves, but at the same time it was stated that the combined masters would resist any unjust demand which might be made by the workmen in their pay.

**Death of a District Surveyor.**—At the last meeting of the Metropolitan Board of Works, the Superintending Architect (Mr. G. Vulliamy) brought up a report relative to the vacancy in the district surveyorship of Bethnal-green (East), caused by the decease of Mr. Robert Culver James. The subject was referred to the Building Act Committee. Mr. James was one of the most recently appointed officers of the Board.

**A River of Ink.**—Report has it that a river of genuine ink has been discovered in Algeria. It is formed by the union of two streams, one coming from a region of ferruginous soil, the other draining a peat swamp. The water of the former is strongly impregnated with iron, that of the latter with gallic acid. When the two waters mingle the acid of the one unites with the iron of the other, forming a true ink.

**Hoardings in the Holborn District.**—At the meeting of the Holborn District Board of Works, on the 20th inst., Mr. Clarke drew attention to the great height of hoardings in different parts of the district. They generally exceeded 20 ft. in height, and one was so high that it got blown down. The surveyor (Mr. Isaacs) replied that he believed he had no control over the height of hoardings, though he had power to determine the projection, and the length of time they should stand. He would confer with the clerk on the subject.

**A Trade Book.**—Messrs. Jas. Shoolbred & Co. have issued a book of "Designs for Furniture," illustrative also of Interior Decoration. As a whole it is superior to the ordinary run of upholsterers' pattern-books, and people who happen to have good taste may get good things out of it. No names of designers are given. The illustrations are all produced by Messrs. Whiteman & Bass.

## TENDERS

For boilers and baths, gasfitting, and stoves, Newington Workhouse, Walworth-common. Messrs. Henry Jarvis & Son, architects:—

*Boilers and Baths.*

| | | | |
|---|---|---|---|
| Jeakes & Co. | £878 | 0 | 0 |
| Lefevre & Co. | 706 | 0 | 0 |
| Green & Co. | 647 | 0 | 0 |
| Fraser Bros. | 629 | 0 | 0 |
| J. & F. May | 591 | 17 | 0 |
| Smeaton & Sons | 525 | 0 | 0 |
| Chandler & Sons | 510 | 0 | 0 |

*Gas-fittings.*

| | | | |
|---|---|---|---|
| Jenrick & Morgan | £573 | 0 | 0 |
| Cannon | 498 | 10 | 0 |
| Green & Co. | 485 | 0 | 0 |
| Heath | 450 | 0 | 0 |
| Miller | 444 | 15 | 0 |
| Bliss & Co. | 400 | 0 | 0 |
| Lefevre & Co. | 322 | 4 | 7 |
| Chandler & Sons | 280 | 0 | 0 |

*Stoves.*

| | | | |
|---|---|---|---|
| Jeakes & Co. | £543 | 0 | 0 |
| May | 508 | 0 | 0 |
| Downs | 489 | 0 | 0 |

For fittings, Northumberland Arms, for Mrs. Green. Mr. W. Paice, architect:—

*Pewterer's work.*

| | | | |
|---|---|---|---|
| Richards | £70 | 10 | 0 |

*Gas-fitting.*

| | | | |
|---|---|---|---|
| Wilman | £120 | 0 | 0 |

For alterations, &c., at the Blade Bone, Bethnal-green-road. Messrs. Bird & Walters, architects:—

| | | | |
|---|---|---|---|
| Kelly Brothers | £1,425 | 0 | 0 |
| Brown | 1,410 | 0 | 0 |
| Newman & Mann | 1,370 | 0 | 0 |
| Lawrence | 1,315 | 0 | 0 |
| Williams & Sons | 1,294 | 0 | 0 |
| Hockly | 1,215 | 0 | 0 |
| Nightingale | 1,197 | 0 | 0 |
| Anley | 1,095 | 0 | 0 |

For butcher's premises, on Harding's-hill, South Shields, for Mr. G. Birkitt. Messrs. Penning & Rudge, architects. Quantities by the architects:—

| | | | |
|---|---|---|---|
| Young | £414 | 3 | 0 |
| Harwood | 392 | 7 | 6 |
| Joeurs | 335 | 0 | 0 |
| Hunter | 290 | 0 | 0 |
| A. & P. Marshall (accepted) | 288 | 4 | 0 |

For additions to Westoe House, Westoe, South Shields, for Mr. T. B. Barker. Messrs. Penning & Rudge, architects. Quantities by the architects:—

| | | | |
|---|---|---|---|
| A. & P. Marshall | £398 | 16 | 0 |
| Nichol | 359 | 16 | 2 |
| Harwood (accepted) | 351 | 17 | 10 |

For repairs and decorations to the late residence of Alderman Challis, Enfield. Mr. T. J. Hill, architect:—

| | | | |
|---|---|---|---|
| Heeps | £612 | 0 | 0 |
| Bentley | 595 | 0 | 0 |
| Patworth (accepted) | 429 | 0 | 0 |

For restoring Vicarage House, St. Botolph, Charterhouse-square, for the Rev. Flood Jones:—
Jarvis & Sons (accepted).

For residence at Birdhurst, Croydon, for Mr. G. E. Brock:—

| | | | |
|---|---|---|---|
| Hobbs (accepted) | £1,700 | 0 | 0 |

For the erection of dwellings, Peel-street, Kensington, for the National Dwellings Society (Limited). Mr. E. Evans Cronk, architect. Quantities supplied by Messrs. J. & A. E. Bull:—

| | | | |
|---|---|---|---|
| Rider | £21,938 | 0 | 0 |
| Sewell | 21,300 | 0 | 0 |
| Bywaters | 20,980 | 0 | 0 |
| Adamson | 20,800 | 0 | 0 |
| Sheppard | 20,650 | 0 | 0 |
| Hill, Higgs, & Hill | 20,400 | 0 | 0 |
| Downs & Co. | 20,150 | 0 | 0 |
| Chappell | 20,000 | 0 | 0 |
| Colls | 19,870 | 0 | 0 |
| Kirk & Randall | 19,860 | 0 | 0 |
| Nightingale | 19,432 | 0 | 0 |

For labour only to a waste factory at Daybrook, near Nottingham, for Mr. John Harrison. Mr. T. G. Alderson, architect. Proprietor finds materials:—

| | | | |
|---|---|---|---|
| Davis | £196 | 10 | 0 |
| Lewin & Carter | 166 | 0 | 0 |
| Carlin & Co. | 157 | 10 | 0 |
| Terry & Langley | 159 | 0 | 0 |
| Parnall & Flinders | 139 | 15 | 0 |

For pulling down and rebuilding No. 15, and for additional story to No. 16, Bartholomew-close, for Mr. R. T. Collins. Mr. George Judge, jun., architect. Quantities supplied by Mr. W. H. Brayshaw:—

| | | | |
|---|---|---|---|
| Palmer & Son | £2,324 | 18 | 0 |
| Colls & Son | 2,235 | 0 | 0 |
| Titmas | 2,141 | 0 | 0 |
| Hawtrey & Son | 2,128 | 0 | 0 |
| Boyce | 2,074 | 0 | 0 |
| Sewell & Son | 2,064 | 0 | 0 |
| Conder | 1,985 | 0 | 0 |
| Dearde (accepted) | 1,844 | 0 | 0 |

For a portion of the ironwork in the construction of the new public baths at White Rock-place, Hastings. Messrs. Cross & Wells and Jeffery & Skiller, joint architects. Quantities supplied:—

| | | | |
|---|---|---|---|
| Rother Ironworks Company | £3,392 | 11 | 0 |
| Rosser & Russell | 3,322 | 9 | 3 |
| Fraser Brothers | 2,988 | 0 | 0 |
| Homan & Rodgers | 2,460 | 0 | 0 |
| Bunnett & Co. | 2,417 | 2 | 0 |
| Turner | 2,351 | 9 | 6 |
| Turner & Co. (too late) | 2,315 | 14 | 0 |
| Geilgud | 2,304 | 5 | 0 |
| Shaw & Co. (accepted) | 2,241 | 10 | 0 |

Messrs. Moreland & Son, Fowler, and McLaren & Co. tendered for a portion only of the work.

For erection of a chapel, vestries, and schools, Redland-road, Bristol. Mr. Robt. Curwen, jun., architect. Quantities by Messrs. Newton & Bamford:—

| | | | |
|---|---|---|---|
| Pugsley | £8,999 | 0 | 0 |
| Davis | 8,495 | 0 | 0 |
| Wilkins & Son | 8,200 | 0 | 0 |
| Krauss | 8,080 | 0 | 0 |
| Howell | 7,813 | 0 | 0 |
| Church & Philips | 7,650 | 0 | 0 |
| Stephens & Bastow | 7,490 | 0 | 0 |
| Foster (accepted) | 7,421 | 0 | 0 |
| Baker & Son | 7,300 | 0 | 0 |

For erection of a chapel and vestry, Thornbury, Gloucestershire. Mr. Robt. Curwen, jun., architect. Quantities by the architect:—

| | | | |
|---|---|---|---|
| Hudson & Tucker | £2,760 | 0 | 0 |
| Saise & Son | 2,450 | 0 | 0 |
| Brown | 2,091 | 0 | 0 |
| Williams-Mark | 1,991 | 0 | 0 |
| Foster & Son (accepted) | 1,656 | 0 | 0 |

For building a factory in Nelson-street, Peter-street, Hackney. Mr. Mundy, architect:—

| | | | |
|---|---|---|---|
| Thomason | £1,695 | 0 | 0 |
| F. & T. J. Wood | 1,575 | 0 | 0 |
| Batchelder | 1,573 | 0 | 0 |
| Ennor | 1,532 | 0 | 0 |
| Croker | 1,492 | 0 | 0 |
| Nightingale | 1,473 | 0 | 0 |
| Hearle | 1,445 | 0 | 0 |

For building warehouses, Bethnal-green-road. Mr. Mundy, architect:—

| | | | |
|---|---|---|---|
| Wire | £1,498 | 0 | 0 |
| Batchelder | 1,443 | 0 | 0 |
| Croker | 1,387 | 0 | 0 |
| Thomason | 1,292 | 10 | 0 |
| Hearle | 1,247 | 0 | 0 |
| Wood | 1,224 | 0 | 0 |
| Nightingale | 1,197 | 0 | 0 |
| Hall | 1,075 | 10 | 0 |

For alterations and additions to the Rookery Mansion, Westcott, for Mr. George Arthur Fuller. Mr. F. J. Dibble, architect:—

| | | | |
|---|---|---|---|
| Colls & Son | £568 | 0 | 0 |
| Heselgrave | 549 | 0 | 0 |
| Lynn & Dudley | 495 | 0 | 0 |
| Putney | 453 | 6 | 0 |

For the erection of a detached villa at Barnett, for Mr. T. M. Weston. Mr. Fras. L. Pither, architect:—
The National Co-operative Builders' and Contractors' Society (accepted) £800 0 0

For building superstructure of warehouses in Miles-lane, City, for Messrs. Mezzeson & Co. Mr. F. Chambers, architect. Quantities supplied by Mr. Mark W. King:—

| | | | |
|---|---|---|---|
| Newman & Mann | £3,085 | 0 | 0 |
| Ashby & Horner | 3,030 | 0 | 0 |
| Brass | 2,997 | 0 | 0 |
| Macey | 2,988 | 0 | 0 |
| Patman & Fotheringham | 2,968 | 0 | 0 |
| Harrison & Wood | 2,937 | 0 | 0 |
| Holland & Hannen | 2,915 | 0 | 0 |
| Browne & Robinson | 2,723 | 0 | 0 |
| Conder | 2,685 | 0 | 0 |

For building new premises, Cannon-street. Messrs. Taylor & Locke, architects. Quantities supplied by Mr. Wm. Birdseye:—

| | | | |
|---|---|---|---|
| Newman & Mann | £22,382 | 0 | 0 |
| Browne & Robinson | 22,138 | 0 | 0 |
| Brass | 21,471 | 0 | 0 |
| Dearde | 21,297 | 0 | 0 |
| Sewell & Son | 21,160 | 0 | 0 |
| Killby | 20,970 | 0 | 0 |
| Sheppard | 20,800 | 0 | 0 |
| Morter | 20,200 | 0 | 0 |

For the erection of an hotel on the site of the Three Nuns Tavern, Aldgate, in the City of London. Messrs. Tarring & Wilkinson, architects. Quantities supplied:—

| | | | |
|---|---|---|---|
| Browne & Robinson | £10,799 | 0 | 0 |
| Newman & Mann | 10,543 | 0 | 0 |
| Perry & Co. | 10,270 | 0 | 0 |
| Burman | 9,600 | 0 | 0 |
| Bracher & Son | 9,150 | 0 | 0 |
| Wagner | 8,950 | 0 | 0 |
| Stephenson | 8,382 | 0 | 0 |

For a house, corner of Frognal-lane, Hampstead, for Mr. W. Read. Mr. T. K. Green, architect. Quantities supplied by Mr. John Scott:—

| | | | |
|---|---|---|---|
| Sharpington & Cole | £2,690 | 0 | 0 |
| Newman & Mann | 2,649 | 0 | 0 |
| Dove Brothers | 2,647 | 0 | 0 |
| Browne & Robinson | 2,612 | 0 | 0 |
| Scrivener & White | 2,591 | 0 | 0 |
| Burford | 2,568 | 0 | 0 |
| Longmire & Burge | 2,566 | 0 | 0 |
| Manley & Rogers | 2,433 | 0 | 0 |

For additions and alterations to White Hall, Hornsey-lane, for Mr. G. Wills. Messrs. Lander & Bedells, architects. Quantities supplied:—

| | | | |
|---|---|---|---|
| Axford | £3,850 | 0 | 0 |
| Brass | 3,817 | 0 | 0 |
| Newman & Mann | 3,736 | 0 | 0 |
| Dove Brothers | 3,675 | 0 | 0 |
| Williams & Son | 3,617 | 0 | 0 |

## TO CORRESPONDENTS.

*Bricklayers' Technical Education Committee, and Institute of Architects.*—We have received a copy of correspondence; it shall have attention next week.

J. W. H.—R. P.—L. & M.—B. W.—B.—Mrs. M.—C. C. H.—Mrs. J. L. M.—J. W.—J. A. M.—R. C.—R. S. R.—E. L. B.—H. S.—G. & B.—F. J. D.—W. H. B.—Town Clerk, Leeds.—Surveyor.—J. P.—A. H.—H. W.—R. W. G. H.—J. J.—Dr. P.—W. H. O.—C. J. S. & W.—C. B.—F. B. P.—Dr. N. (we are compelled uniformly to decline).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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